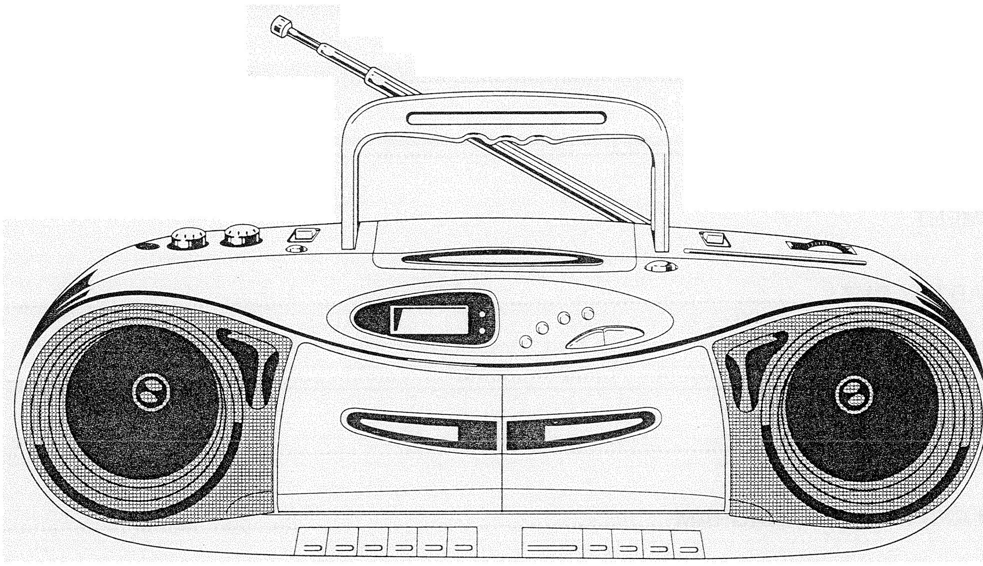
SAMSUNG

SERVICE MANUAL

RCD -1230

RADIO CASSETTE RECORDER WITH COMPACT DISC PLAYER



SPECIFICATION

GENERAL

Frequency response	: 20~20000Hz
Speaker	: Woofer : ø 100mm x 2(4 W)
Maximum output	: 2W(DC)/CH
Power source	: AC : See label rating DC : 9V (D x 6)
Power consumption	: 14W
Dimension	: 560(W)X213(D)X180(H)mm
Weight	: 3.4Kg (Without batteries)
Headphone jack	: ø 3.5mm

RADIO

Frequency range	FM : 88~108MHz AM : 530~1705KHz(OPTION) 530~1605KHz LW : 150~285KHz(OPTION) SW : 6~18MHz(OPTION)
I.F	FM : 10.7MHz
Antenna	FM : Telescopic rod antenna AM : Ferrite bar antenna

TAPE

Track system	: 4 track 2 channel
Recording system	: AC bias (DECK A)
Erasing system	: Magnetic erasing (DECK A)
Monitor system	: Variable monitor
Frequency response	: Normal 50~10000Hz CrO_2/METAL (PB)
Tape speed	: 4.75cm/sec (Normal speed) 9.5cm/sec (High speed)
Tape drive system	: Capstan belt driven
Tape loading system	: Front loading
Motor system	: DC synchronous 2 speed motor (DC 9V)
Signal to Noise Ratio	: 40 dB
Separation	: 35 dB
Total Harmonic Distortion	: 2%

COMPACT DISC PLAYER

Frequency range	: 20 ~ 20,000Hz
Signal to Noise ratio	: 82 dB (at 1KHz) with filter
THD	: 0.1% (at 1KHz with 30KHz L.P.F)
D/A Conversion	: 16 bits

Design and specifications are subject to change upon improvement without prior notice.

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■ SAFETY PRECAUTION

1. CLASS 1 LASER PRODUCT

This compact disc player is classified as a CLASS 1 laser product.

2. LASER WARNING LABEL

The label shown below may be affixed or not according to country.

(UL)

This Product Compiles with DHHS Rules 21CFR, Sub chapter J.At date of Manufacture.

(CSA)

CERTIFIED ONLY TO CANADIAN ELECTRICAL CODE.

CERTIFIE EN VERTU DU CODE CANADIAN DE LELETRICITE SEULEMENT

(EU)

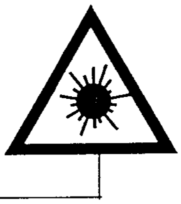
CLASS1
LASER PRODUCT

Location : Enclosure back.

(SCAN)

ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING,NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

(EU)



UL : Manufactured for U.S.A Market.
CSA : Manufactured for Canadian Market.
EU : Manufactured for European Market.
SCAN : Manufactured for Scandinavian Market.

Location : on the disc clamper or inner side of CD door or nearby CD chassis.

3. LASER BEAM WARNING

ADVERSEL — USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING — OSYNLIG LASERSTRÅLNING NÄR DENNA DELÄR ÖPPNAD OCH SPÄRR ÄR URKOPPLAD. STRALEN ÄR FARLIG.

VARITUS — LAITE SISÄLTÄA LASERDIODIN, JOKA LÄHETTÄÄ NÄKYMÄTÖNTA SILMILLE VAARALLISTA LASERSATEILYÄ

CAUTION — INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

4. LASER DIODE SPECIFICATION (OPTICAL PICK-UP)

- Material : AlGaAs
- Wavelength : 760-800nm
- Emission duration : Continuous
- Laser Output : 0.2mW
- * This output is the value measured at distance 1.6mm from the objective lens surface on the optical pick-up block.
- Classification : CLASS 1

5. WARNING FOR SERVICING

WARNING : When servicing, do not approach the LASER exit with the eye too closely. In case it is necessary to confirm LASER beam emission, be sure to observe from a distance of more than 30cm from the surface of the objective lens on the optical pick-up block.

VARNING : När underhållningsarbeten utförs, närma dig försiktigt och se inte på laserutstrålningen på för näre häll. Ifall det är nödvändigt att betrygga laserstrålens utströmning. Var säker att kontrollera detta från ett avstånd av mer än 30cm (11.81 inch.) från den objecktiva linsens yta på den optiska utsåndningspunkten.

ADVARSEL : När repareringsarbejdet udfoeres, naerm dig forsigtigt og se ikke på laserudstrålingen på for naer hånd. It ilfaeldet at det er noedvaendigt at bestemme laserstrålens udstråling. Vaer sikker på kontrollere dette fra en afstand af mere end 30cm (11.81 inch.) fra den objektive linses overflade på den optiske udsendningspunkt.

VAROITUS : Silmiä on varottava viemästä liian läbeiie Laser-poistokanavaa huoiion aikana. Jos on välttämätöntä varmistaa Laser-Säteen päästö, pusyttels sitä tarkasteltaessa vähintään 30cm etäiyydellä optisen lukon objecktiivilinssin pinnasta.

■ SERVICING NOTE

1. Disconnect power supply cord before separating cabinet for servicing as you may experience an electric shock.
2. Avoid repairing under direct sunshine and heat which may cause cabinet, transistor and IC to be transformed or misoperate.
3. Use a soft cotton swab moistened with warm water or neutral cleaner when parts of a unit need to be cleaned.
4. When replacing parts with safety features built in, be sure to use specified parts with same specifications only.
5. Avoid repairing the set near a TV or any other magnetic forces.
6. Disconnect the plug from wall socket during electric storm to reduce the risk of damage.
7. Be careful of electrostatic damage when replacing the control IC such as µ-COM, LSI and pick-up.
8. Be sure not to separate the pick-up from the unit and not to touch the ALPC (Automatic Laser Power Control) circuit.

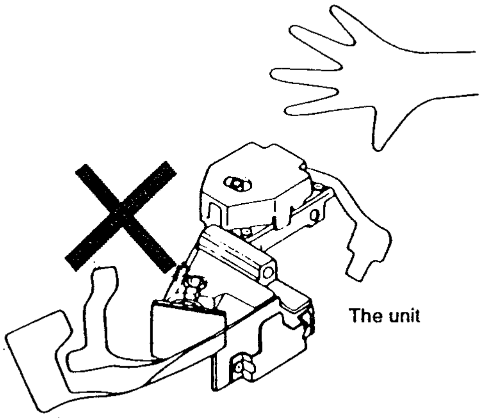
HANDLING THE OPTICAL PICK-UP

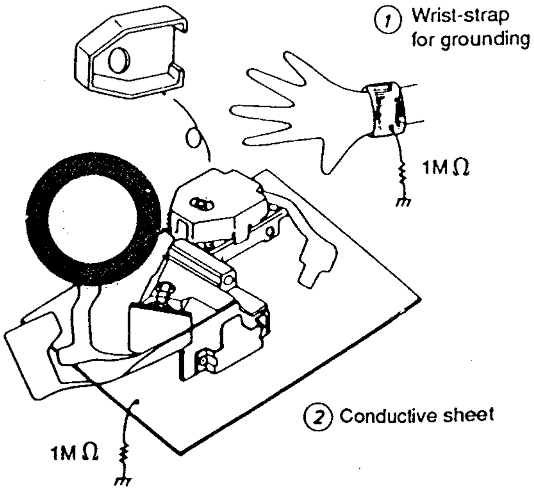
- The laser diode in the optical pick up may suffer electrostatic breakdown because of potential static electricity from clothing and your body.

The following method is recommended.

1. Place a conductive sheet on the workbench. (The black sheet used as wrapping for repair parts.)
2. Place the set on the conductive sheet so that the chassis is grounded to the sheet.
3. Place your hands on the conductive sheet. (This gives them the same ground as the sheet.)
4. Remove the optical pick up block.
5. Perform work on top of the conductive sheet.
   Be careful not to let your clothes or any other static sources touch the unit.

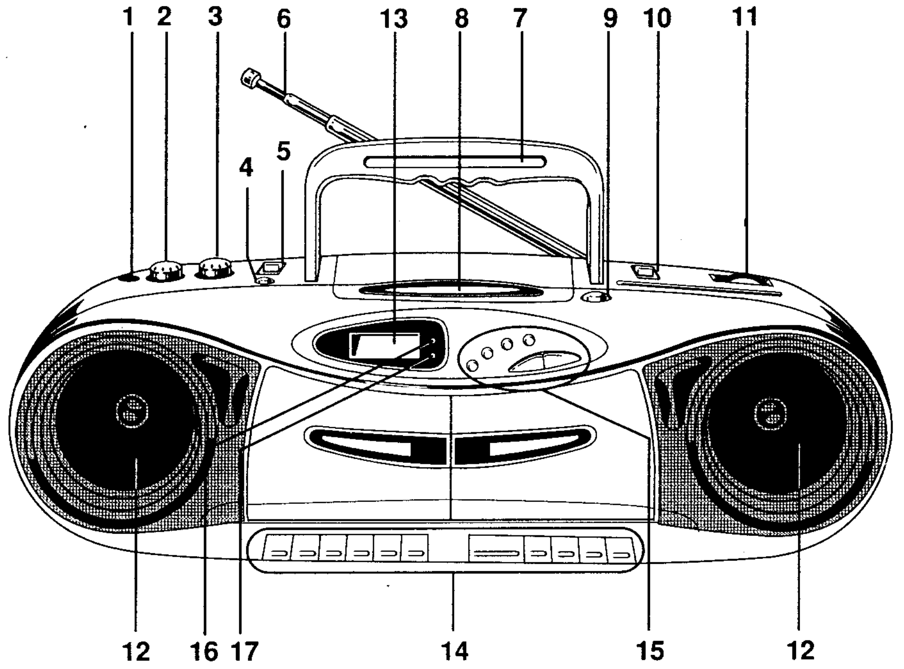
- Be sure to put on a wrist-strap grounded to the sheet.
- Be sure to lay a conductive sheet made of copper etc. which is grounded to the table.





■ LOCATION OF CONTROLS

1. FRONT PANEL



1
2
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13
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4
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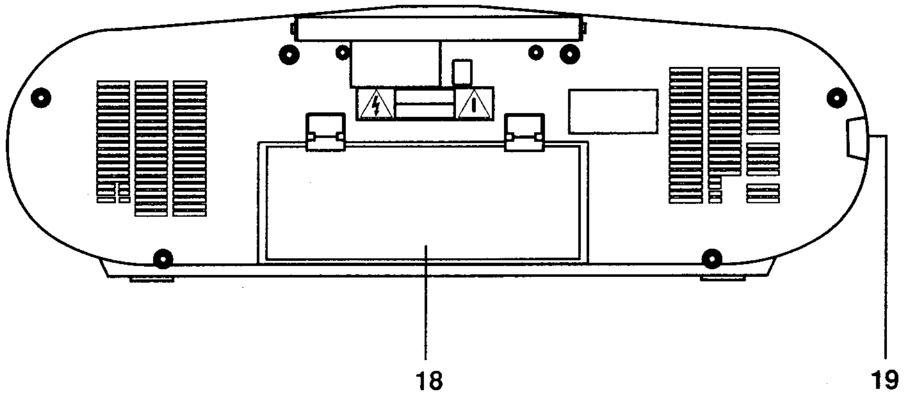
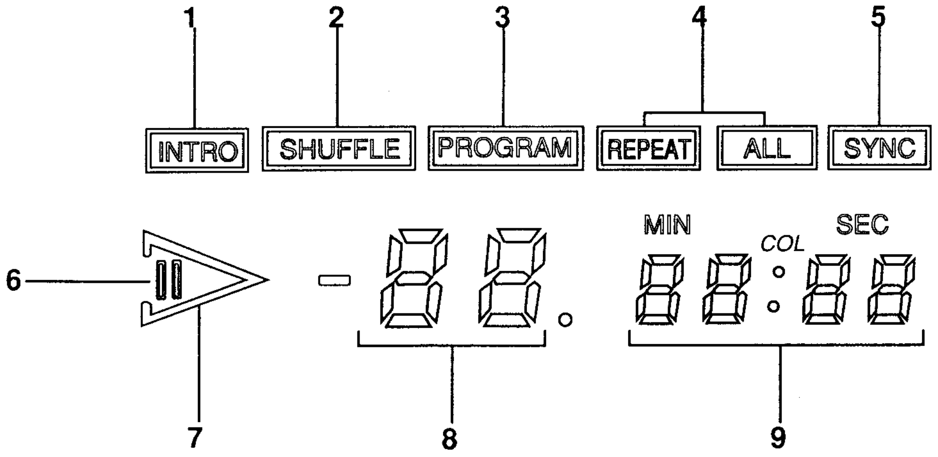
12
16
17
14
15
12

2. REAR PANEL



3. CD OPERATION LCD



1
2
3
4
5
INTRO
SHUFFLE
PROGRAM
REPEAT
ALL
SYNC
MIN
COL
SEC
6
7
8
9

1. FRONT PANEL

1. HEADPHONE JACK
2. VOLUME CONTROL
3. TONE CONTROL
4. TAPE SEL BUTTON (CrO_2 PB/NORMAL)/
   MODE (FM-MONO/FM-STEREO)/
   BEAT CUT BUTTON
5. FUNCTION SELECTOR
   (TAPE,RADIO OFF/CD/RADIO)
   DUBBING SPEED (NOR/HIGH)
6. TELESCOPIC ANTENNA
7. HANDLE
8. CD DOOR
9. PUSH OPEN BUTTON (CD)
10. BAND SELECTOR (FM/AM)
11. TUNING KNOB
12. SPEAKER (L,R)
13. CD OPERATION LCD
14. DECK OPERATION BUTTONS
    RECORD BUTTON (DECK A ONLY)
    PLAY BUTTON
    REW BUTTON
    F.FWD BUTTON
    STOP/EJECT BUTTON
    PAUSE BUTTON
15. CD OPERATION BUTTONS
    SKIP & SEARCH (⏮ , ⏭) BUTTON
    PROGRAM BUTTON
    MODE BUTTON
    STOP BUTTON
    PLAY/PAUSE BUTTON)
16. POWER INDICATOR
17. FM STEREO INDICATOR

2. REAR PANEL

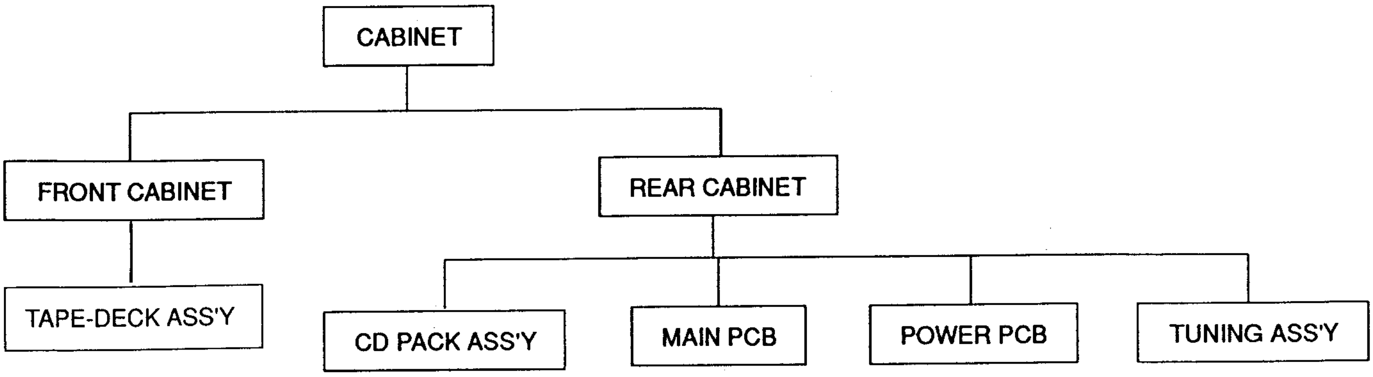
18. BATTERY COMPARTMENT
19. AC IN ~ SOCKET (MOUNTED ON SIDE)

3. CD OPERATION LCD

1. INTRO INDICATOR
2. SHUFFLE INDICATOR
3. PROGRAM INDICATOR
4. REPEAT,ALL INDICATOR
5. SYNC INDICATOR
6. PAUSE INDICATOR
7. PLAY INDICATOR
8. TRACK NUMBER INDICATOR
9. TIME INDICATOR

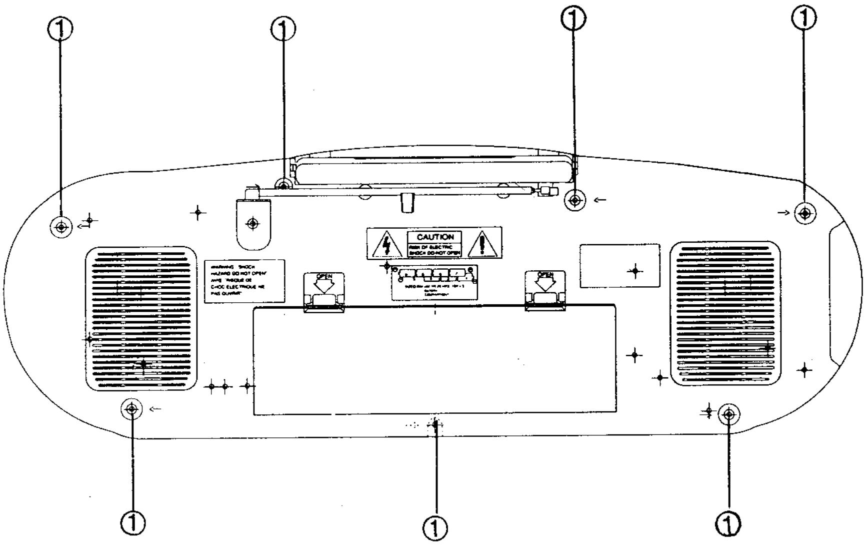
■ DISASSEMBLY INSTRUCTION

- Be sure to unplug power cord and remove batteries before disassembling the unit.


CABINET
FRONT CABINET
REAR CABINET
TAPE-DECK ASS'Y
CD PACK ASS'Y
MAIN PCB
POWER PCB
TUNING ASS'Y

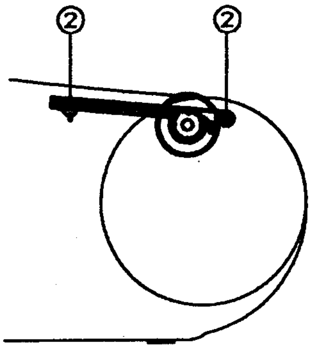
1. CABINET (FRONT/REAR)

1) Release 7 screws (1)
2) Split Front and Back cabinet


①
①
①
①
CAUTION
OPEN
OPEN
①
①
①

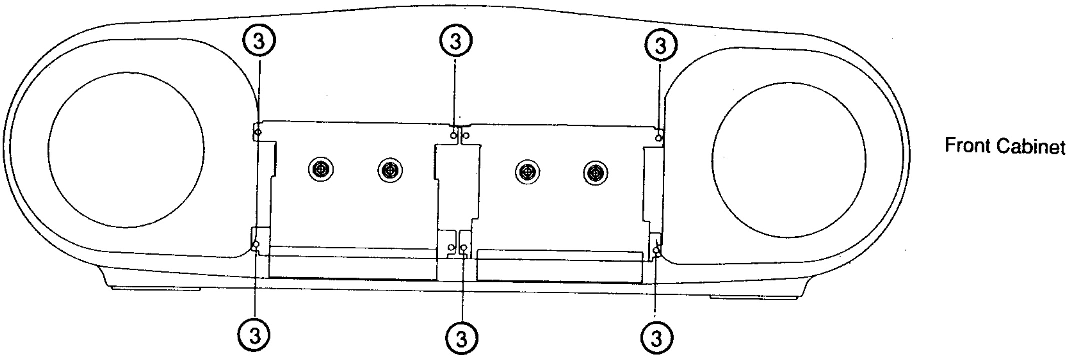
2. TUNING ASSEMBLY

1) Release 2 screws (2)
2) Remove tuning assembly



3. CASSETTE DECK ASSEMBLY

1) Retease 6 screws ③ from the Front Cabinet.
2) Remove cassette deck assembly.

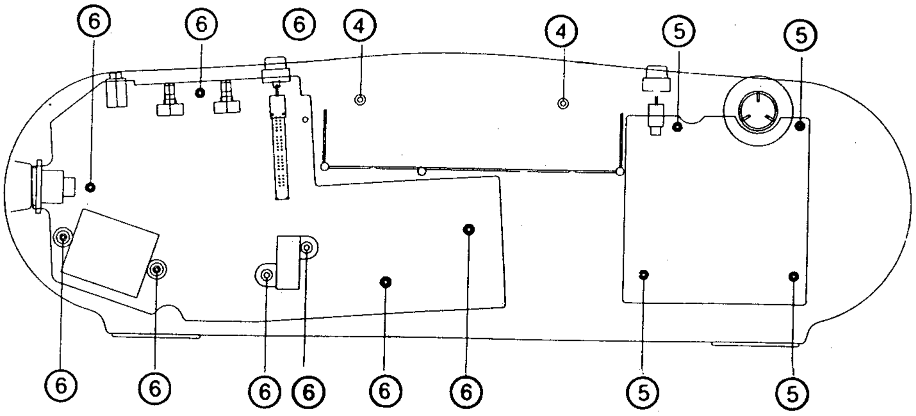

③
③
③
Front Cabinet
③
③
③

4. CD PACK ASSEMBLY & MAIN PCB

1) Release 2 screws ④ .
2) Remove CD pack assembly from the Back cabine
3) Release 9 screws ⑥ .
4) Remove main PCB.

5. TUNER PCB

1) Release 4 screws ⑤ .
2) Remove Tuner PCB.

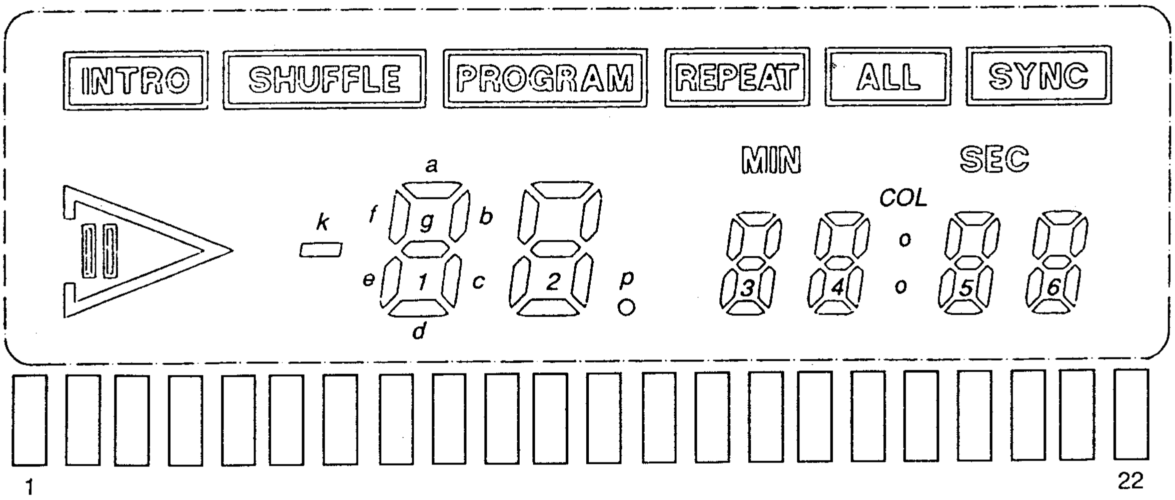

⑥
⑥
⑥
④
④
⑤
⑤
⑥
⑥
⑥
⑥
⑥
⑥
⑤
⑤

■ DESCRIPTION OF LCD SEGMENTS

If one or all of the LCD Segments (see segment diagram below) don't work, check if IC7530 and LCD pins are properly connected refering to the chart below.

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14
COM1	COM1			INTRO	K	1a		SHUFFLE	2a	P	PROGRAM	3a	MIN	REPEAT
COM2		COM2		▷	1f	1g	1b	2f	2g	2b	3f	3g	3b	4f
COM3			COM3	⏸	1e	1d	1c	2e	2d	2c	3e	3d	3c	4e

No	15	16	17	18	19	20	21	22
COM1	4a	COL	ALL	5a	SEC	SYNC	6a	
COM2	4g	4b	5f	5g	5b	6f	6g	6b
COM3	4d	4c	5e	5d	5c	6e	6d	6c

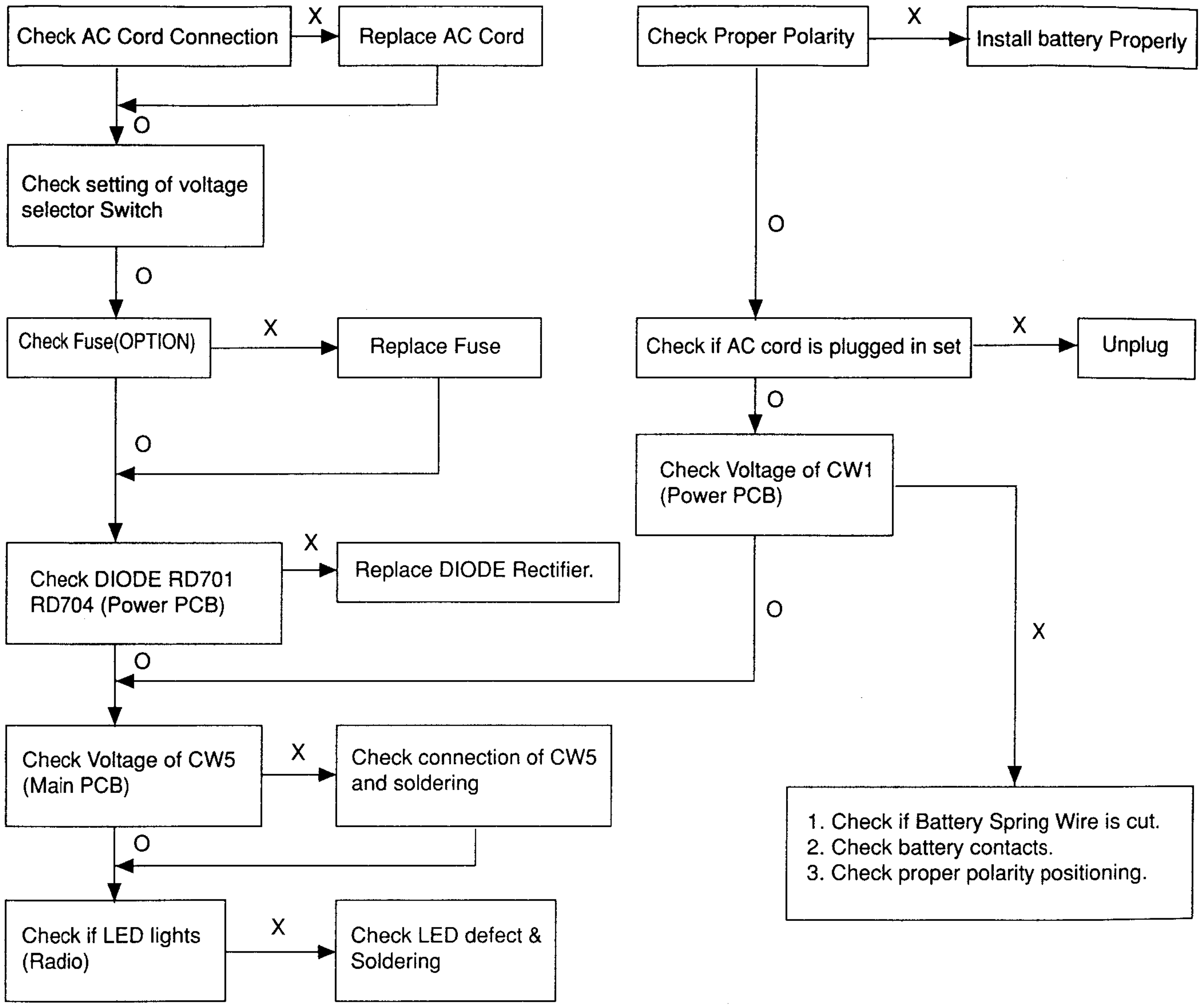

INTRO
SHUFFLE
PROGRAM
REPEAT
ALL
SYNC
MIN
SEC
COL
a
k
f
g
b
e
1
c
2
p
d
3
4
5
6
1
22

■ TROUBLE SHOOTING CHART

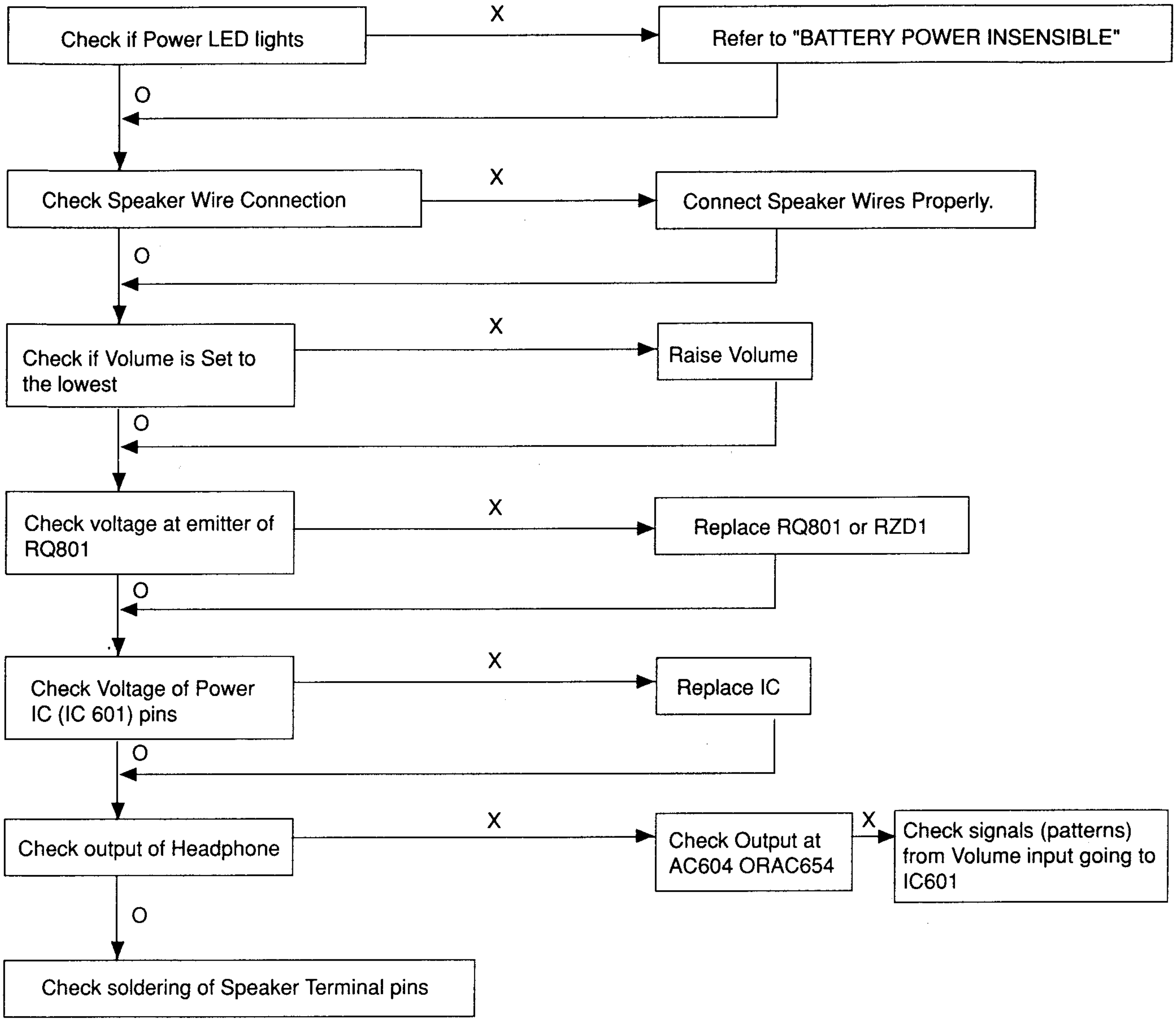
1. RADIO CASSETTE SECTION

1) AC POWER INSENSIBLE

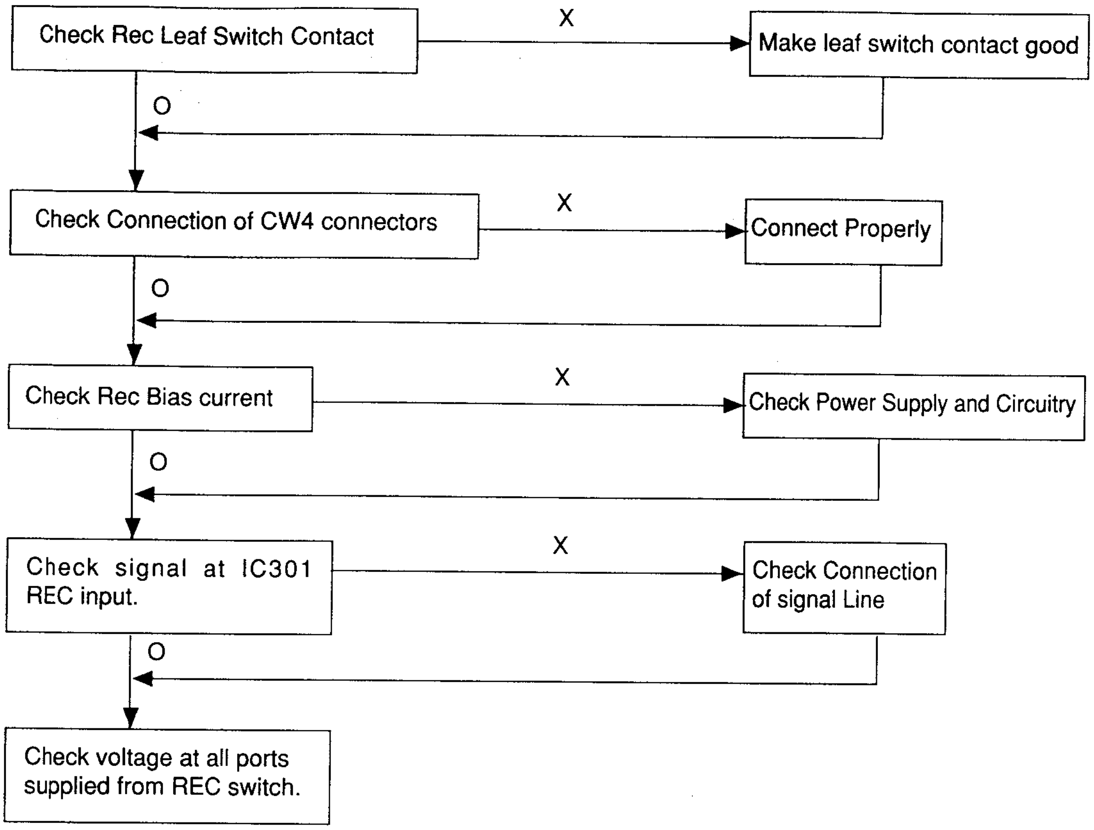
2) BATTERY POWER INSENSIBLE


Check AC Cord Connection
X
Replace AC Cord
O
Check setting of voltage selector Switch
O
Check Fuse(OPTION)
X
Replace Fuse
O
Check DIODE RD701 RD704 (Power PCB)
X
Replace DIODE Rectifier.
O
Check Voltage of CW5 (Main PCB)
X
Check connection of CW5 and soldering
O
Check if LED lights (Radio)
X
Check LED defect & Soldering
Check Proper Polarity
X
Install battery Properly
O
Check if AC cord is plugged in set
X
Unplug
O
Check Voltage of CW1 (Power PCB)
O
X
1. Check if Battery Spring Wire is cut.
2. Check battery contacts.
3. Check proper polarity positioning.

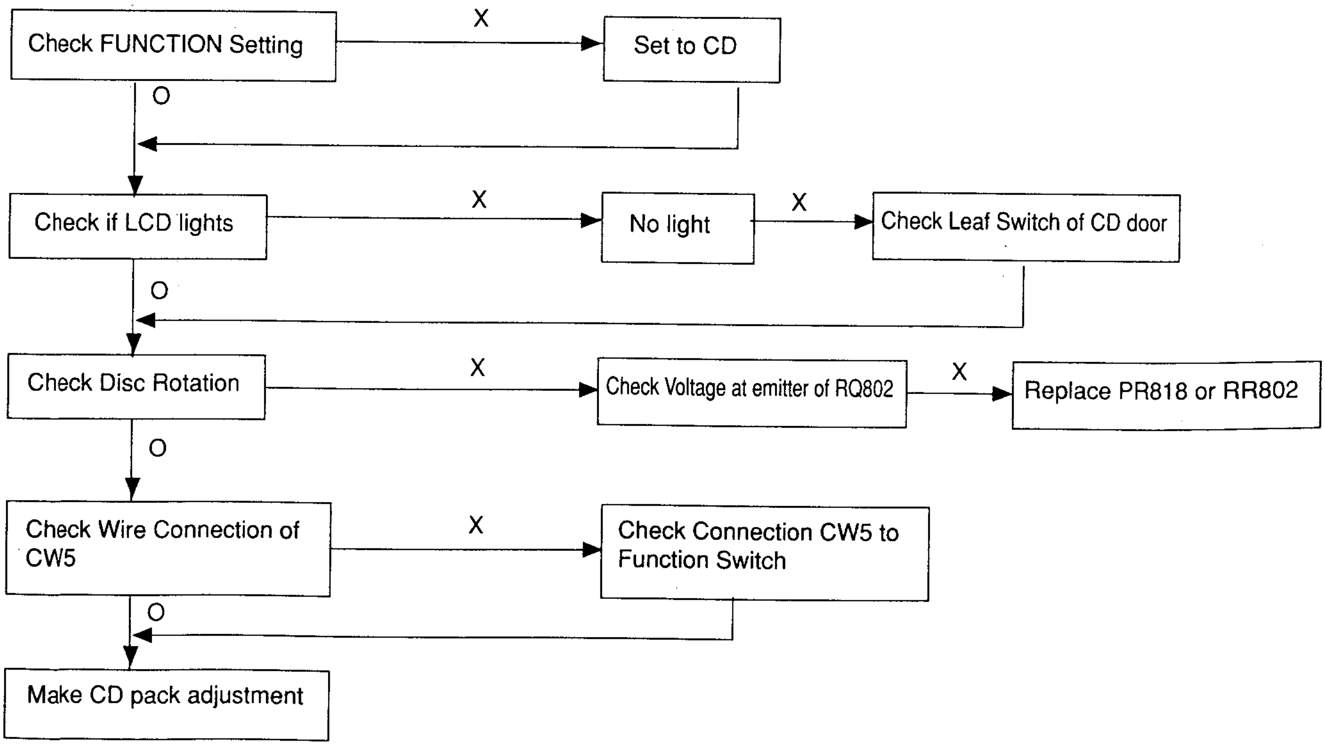
3) NO AUDIO OUTPUT


Check if Power LED lights
X
Refer to "BATTERY POWER INSENSIBLE"
O
Check Speaker Wire Connection
X
Connect Speaker Wires Properly.
O
Check if Volume is Set to the lowest
X
Raise Volume
O
Check voltage at emitter of RQ801
X
Replace RQ801 or RZD1
O
Check Voltage of Power IC (IC 601) pins
X
Replace IC
O
Check output of Headphone
X
Check Output at AC604 ORAC654
X
Check signals (patterns) from Volume input going to IC601
O
Check soldering of Speaker Terminal pins

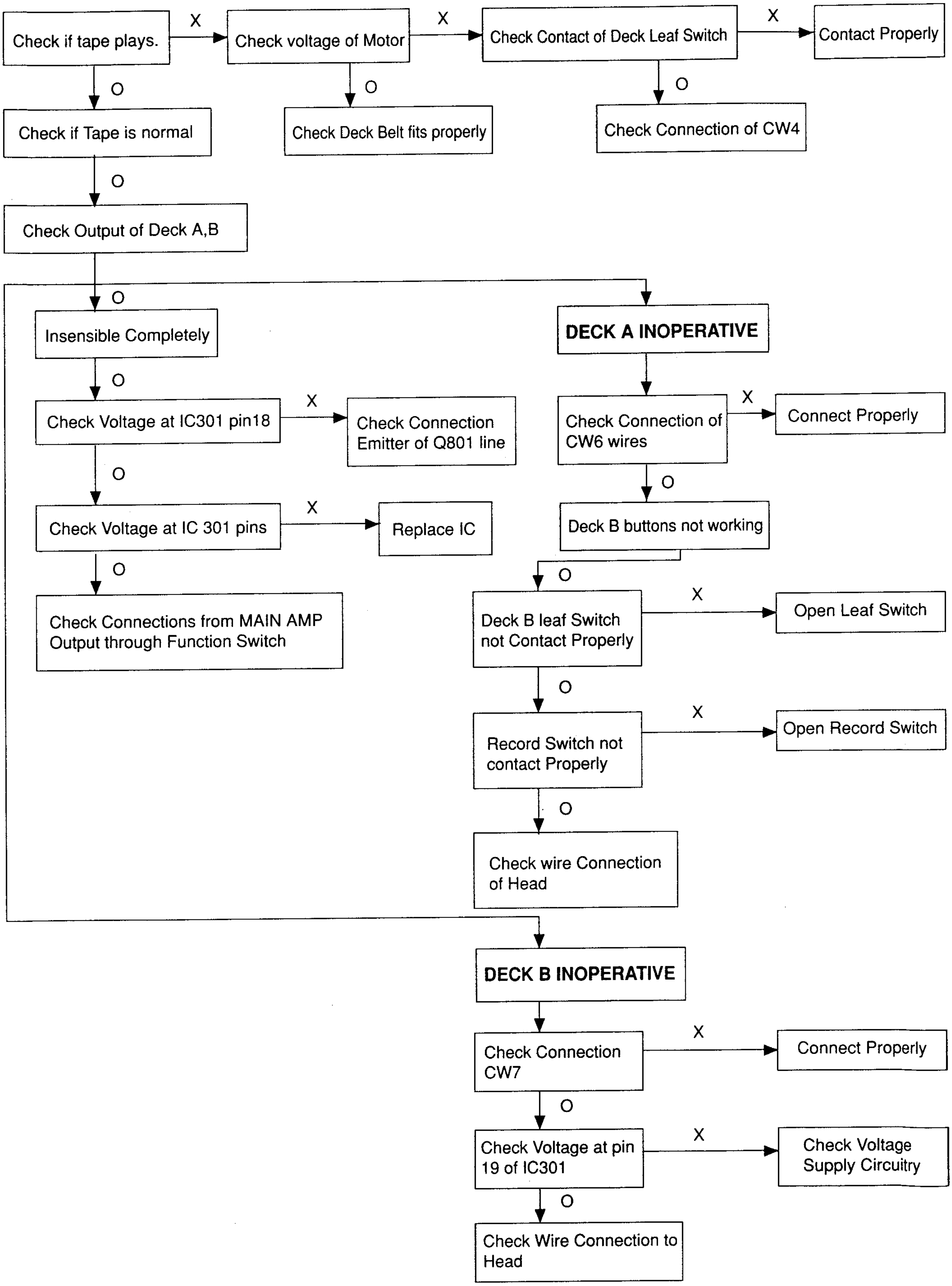
4) RECORDING NOT WORKING


Check Rec Leaf Switch Contact
X
Make leaf switch contact good
O
Check Connection of CW4 connectors
X
Connect Properly
O
Check Rec Bias current
X
Check Power Supply and Circuitry
O
Check signal at IC301 REC input.
X
Check Connection of signal Line
O
Check voltage at all ports supplied from REC switch.

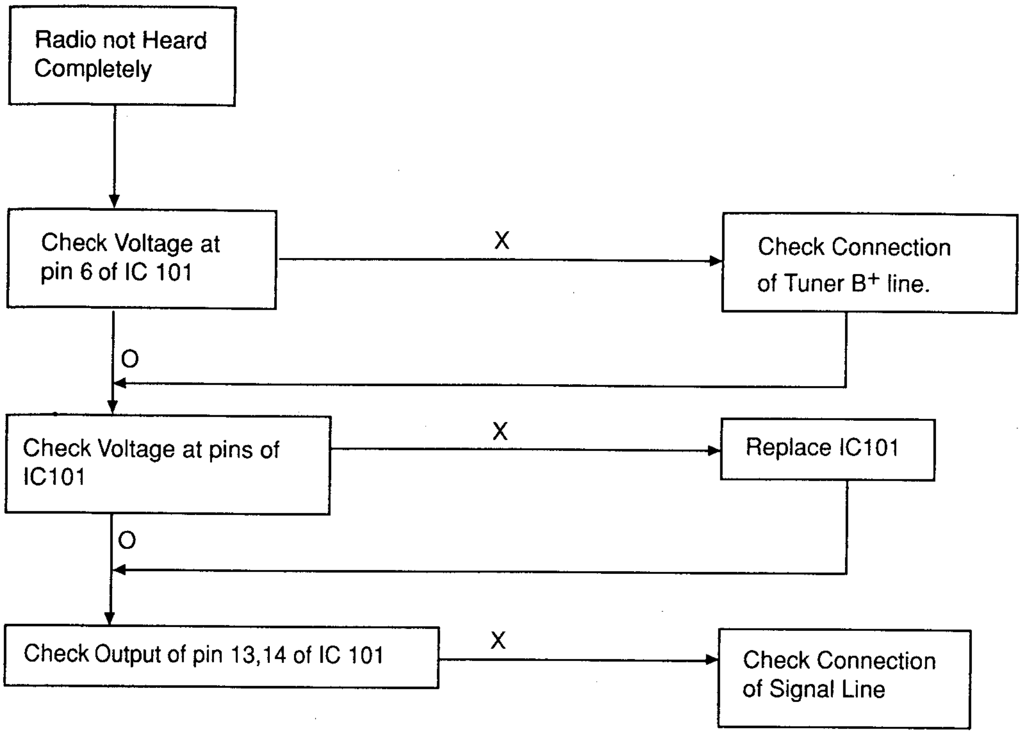
5) COMPACT DISC INOPERATIVE


Check FUNCTION Setting
X
Set to CD
O
Check if LCD lights
X
No light
X
Check Leaf Switch of CD door
O
Check Disc Rotation
X
Check Voltage at emitter of RQ802
X
Replace PR818 or RR802
O
Check Wire Connection of CW5
X
Check Connection CW5 to Function Switch
O
Make CD pack adjustment

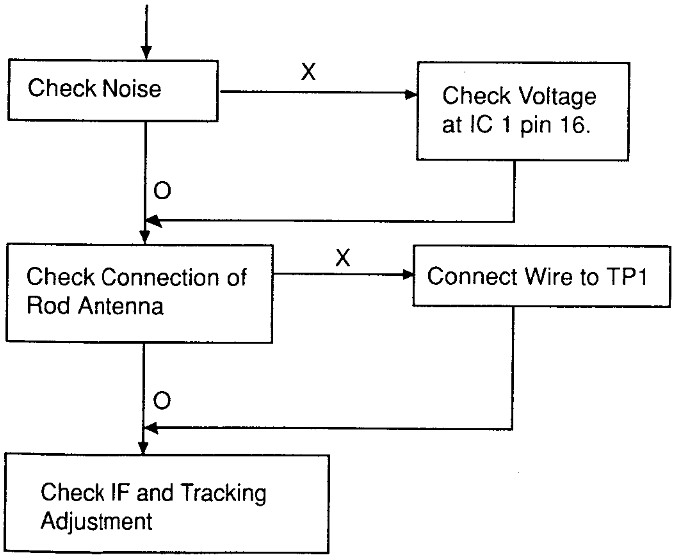
6) TAPE NOT WORKING


Check if tape plays.
X
Check voltage of Motor
X
Check Contact of Deck Leaf Switch
X
Contact Properly
O
Check if Tape is normal
O
Check Deck Belt fits properly
O
Check Connection of CW4
O
Check Output of Deck A,B
O
Insensible Completely
DECK A INOPERATIVE
O
Check Voltage at IC301 pin18
X
Check Connection Emitter of Q801 line
Check Connection of CW6 wires
X
Connect Properly
O
O
Check Voltage at IC 301 pins
X
Replace IC
Deck B buttons not working
O
O
Check Connections from MAIN AMP Output through Function Switch
Deck B leaf Switch not Contact Properly
X
Open Leaf Switch
O
Record Switch not contact Properly
X
Open Record Switch
O
Check wire Connection of Head
DECK B INOPERATIVE
Check Connection CW7
X
Connect Properly
O
Check Voltage at pin 19 of IC301
X
Check Voltage Supply Circuitry
O
Check Wire Connection to Head

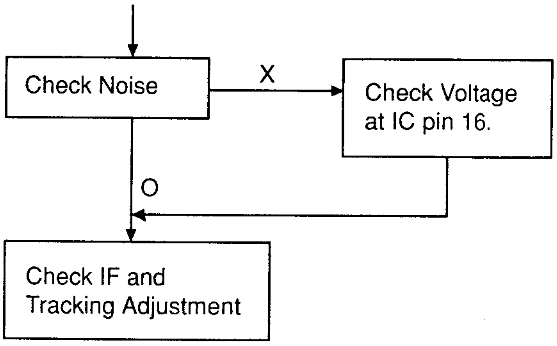
7) RADIO INSENSIBLE


Radio not Heard Completely
Check Voltage at pin 6 of IC 101
X
Check Connection of Tuner B+ line.
O
Check Voltage at pins of IC101
X
Replace IC101
O
Check Output of pin 13,14 of IC 101
X
Check Connection of Signal Line

FM INSENSIBLE


Check Noise
X
Check Voltage at IC 1 pin 16.
O
Check Connection of Rod Antenna
X
Connect Wire to TP1
O
Check IF and Tracking Adjustment

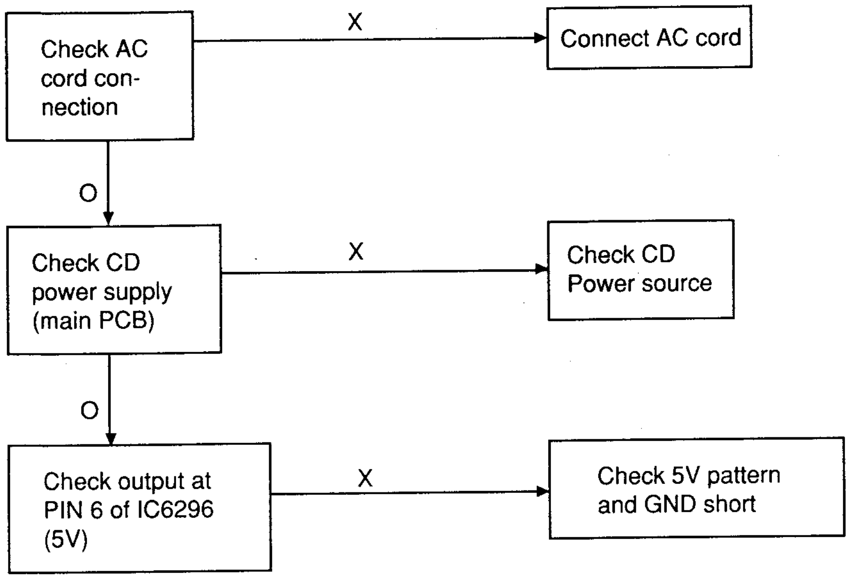
AM INSENSIBLE


Check Noise
X
Check Voltage at IC pin 16.
O
Check IF and Tracking Adjustment

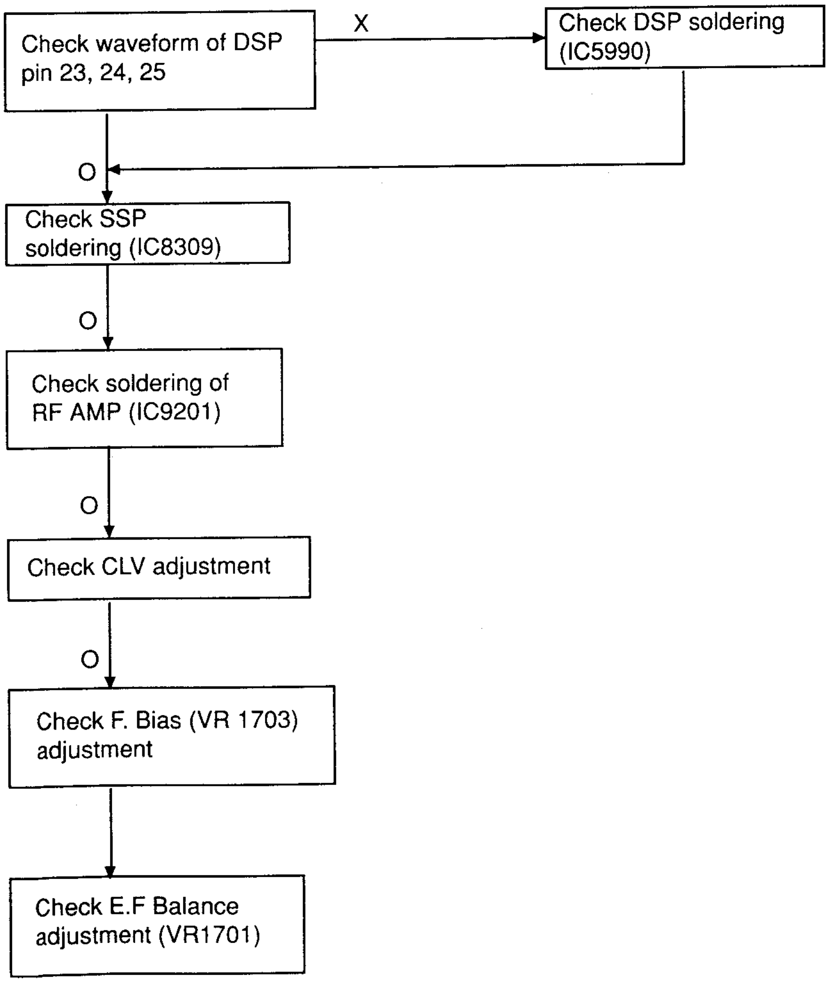
2. CD SECTION

* Refer to Schematic Diagram

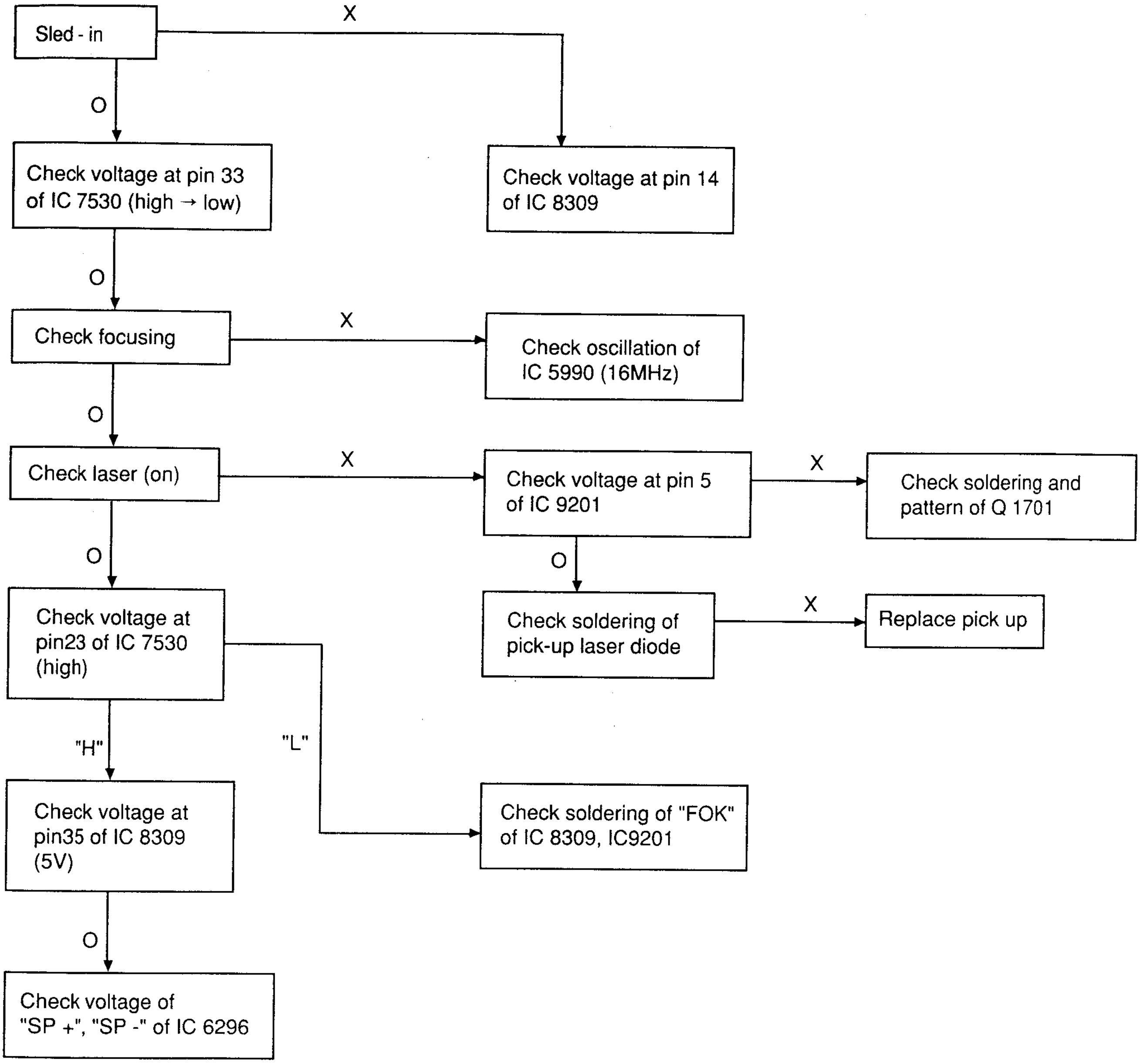
1) POWER NOT SENSIBLE


Check AC cord connection
X
Connect AC cord
O
Check CD power supply (main PCB)
X
Check CD Power source
O
Check output at PIN 6 of IC6296 (5V)
X
Check 5V pattern and GND short

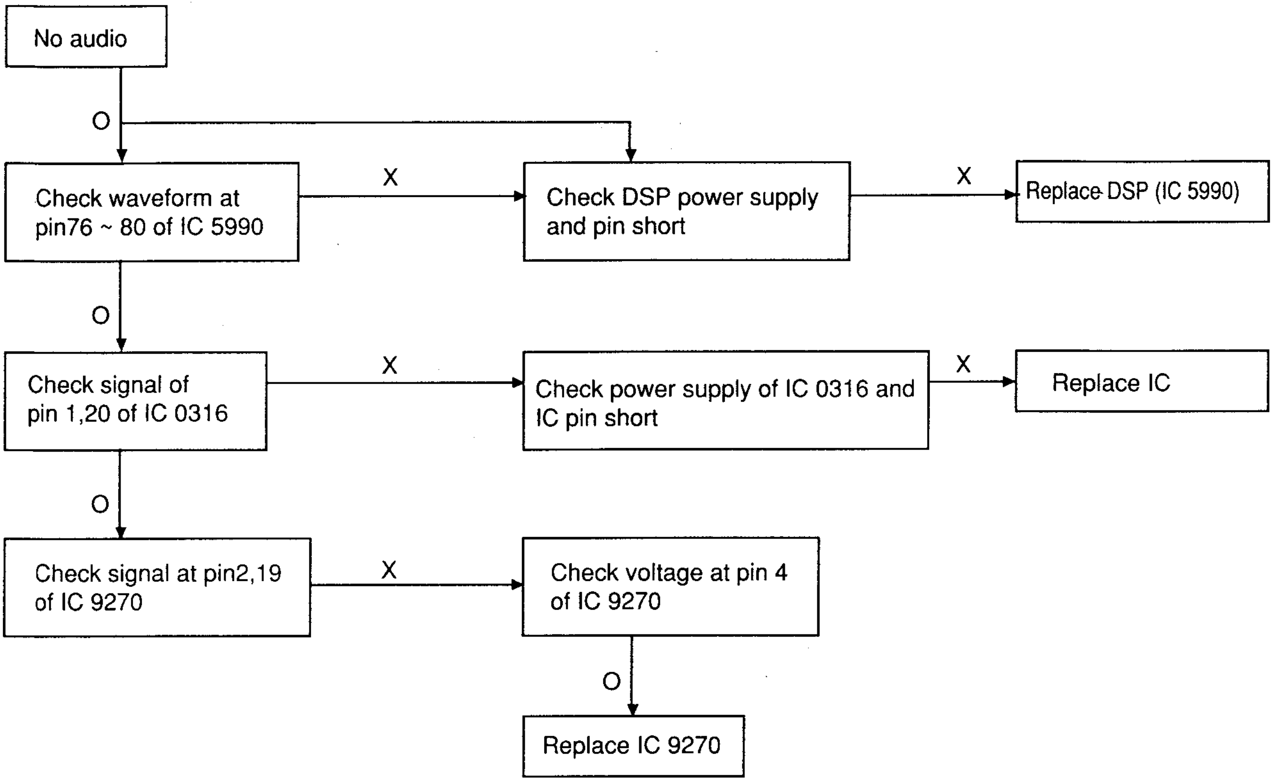
2) LEAD-IN NOT WORKING


Check waveform of DSP pin 23, 24, 25
X
Check DSP soldering (IC5990)
O
Check SSP soldering (IC8309)
O
Check soldering of RF AMP (IC9201)
O
Check CLV adjustment
O
Check F. Bias (VR 1703) adjustment
Check E.F Balance adjustment (VR1701)

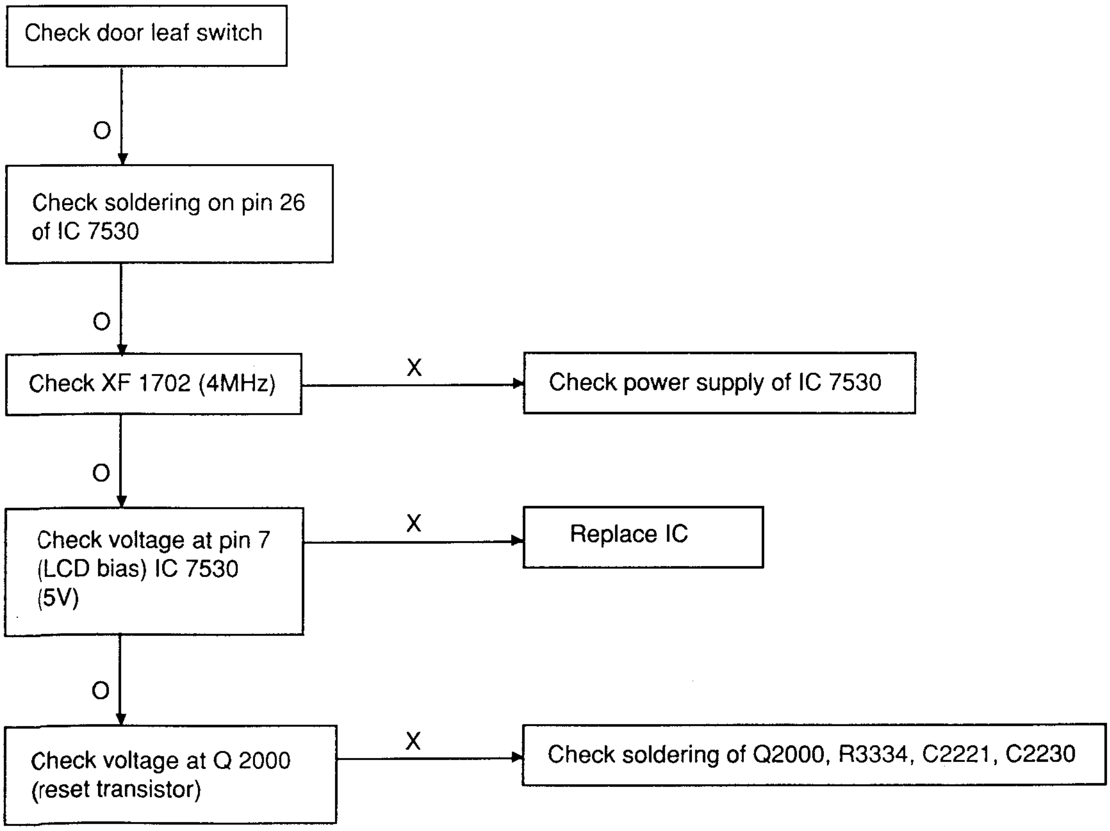
3) DISC NOT ROTATING


Sled - in
X
O
Check voltage at pin 33 of IC 7530 (high → low)
Check voltage at pin 14 of IC 8309
O
Check focusing
X
Check oscillation of IC 5990 (16MHz)
O
Check laser (on)
X
Check voltage at pin 5 of IC 9201
X
Check soldering and pattern of Q 1701
O
O
Check voltage at pin23 of IC 7530 (high)
Check soldering of pick-up laser diode
X
Replace pick up
"H"
"L"
Check voltage at pin35 of IC 8309 (5V)
Check soldering of "FOK" of IC 8309, IC9201
O
Check voltage of "SP +", "SP -" of IC 6296

4) NO AUDIO


No audio
O
Check waveform at pin76 ~ 80 of IC 5990
X
Check DSP power supply and pin short
X
Replace DSP (IC 5990)
O
Check signal of pin 1,20 of IC 0316
X
Check power supply of IC 0316 and IC pin short
X
Replace IC
O
Check signal at pin2,19 of IC 9270
X
Check voltage at pin 4 of IC 9270
O
Replace IC 9270

5) DISPLAY NOT WORKING


Check door leaf switch
O
Check soldering on pin 26 of IC 7530
O
Check XF 1702 (4MHz)
X
Check power supply of IC 7530
O
Check voltage at pin 7 (LCD bias) IC 7530 (5V)
X
Replace IC
O
Check voltage at Q 2000 (reset transistor)
X
Check soldering of Q2000, R3334, C2221, C2230

■ ADJUSTMENT

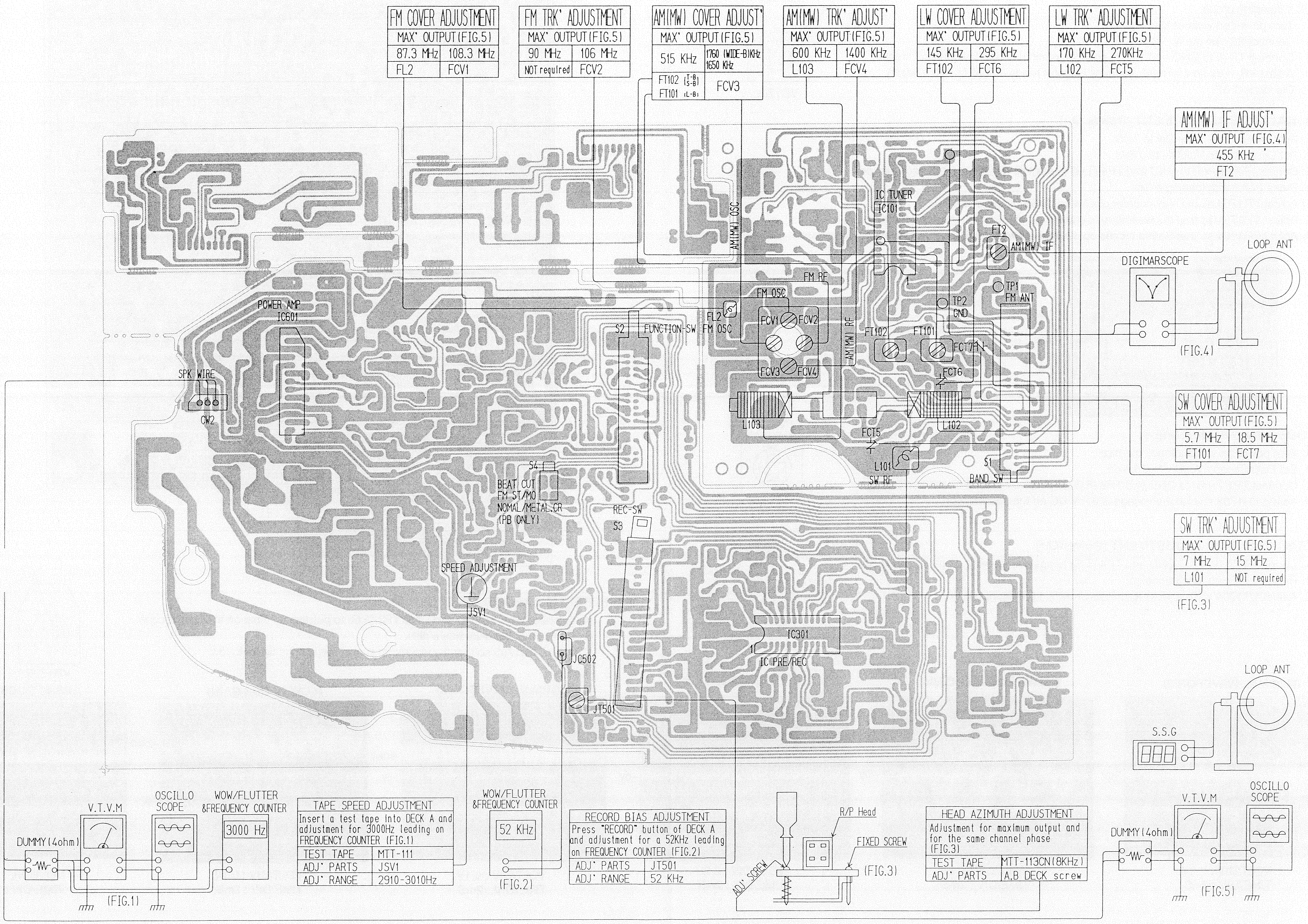
● INSTRUMENTS AND TOOLS

1. AM STANDARD SIGNAL GENERATOR
2. FM STANDARD SIGNAL GENERATOR
3. FM/AM IF GENERATOR: 10.7MHZ, 455KHZ (465KHZ).
4. OSCILLOSCOPE
5. OUTPUT METER: LEVEL METER OR AC VOLTMETER.
6. LOOP ANTENNA
7. DUMMY LOAD (4 ohm)
8. SW DUMMY ANT.
9. FREQUENCY COUNTER
10. FM STEREO MODULATOR

● IMPORTANT

1. Check the power source voltage.
2. Select desired Band and Function.
3. Set Tone Control at mid position
4. Modulate AM to 30% amplitude with 400Hz signal and FM to 22.5KHz deviation with 400Hz signal.
5. Set Volume Control to approximately 50mW (4ohm)

■ MAIN & TUNER ADJUSTMENT



FM COVER ADJUSTMENT	
MAX' OUTPUT(FIG.5)	
87.3 MHz	108.3 MHz
FL2	FCV1

FM TRK' ADJUSTMENT	
MAX' OUTPUT(FIG.5)	
90 MHz	106 MHz
NOT required	FCV2

AM(MW) COVER ADJUST'	
MAX' OUTPUT(FIG.5)	
515 KHz	1760 (WIDE-B)KHz 1650 KHz
FT102 (T-B, S-B) FT101 (L-B)	FCV3

AM(MW) TRK' ADJUST'	
MAX' OUTPUT(FIG.5)	
600 KHz	1400 KHz
L103	FCV4

LW COVER ADJUSTMENT	
MAX' OUTPUT(FIG.5)	
145 KHz	295 KHz
FT102	FCT6

LW TRK' ADJUSTMENT	
MAX' OUTPUT(FIG.5)	
170 KHz	270KHz
L102	FCT5

AM(MW) IF ADJUST'
MAX' OUTPUT (FIG.4)
455 KHz
FT2

SW COVER ADJUSTMENT	
MAX' OUTPUT(FIG.5)	
5.7 MHz	18.5 MHz
FT101	FCT7

SW TRK' ADJUSTMENT	
MAX' OUTPUT(FIG.5)	
7 MHz	15 MHz
L101	NOT required

TAPE SPEED ADJUSTMENT

Insert a test tape into DECK A and adjustment for 3000Hz leading on FREQUENCY COUNTER (FIG.1)

TEST TAPE	MTT-111
ADJ' PARTS	JSV1
ADJ' RANGE	2910-3010Hz

RECORD BIAS ADJUSTMENT

Press "RECORD" button of DECK A and adjustment for a 52KHz leading on FREQUENCY COUNTER (FIG.2)

ADJ' PARTS	JT501
ADJ' RANGE	52 KHz

HEAD AZIMUTH ADJUSTMENT

Adjustment for maximum output and for the same channel phase (FIG.3)

TEST TAPE	MTT-113CN(8KHz)
ADJ' PARTS	A,B DECK screw

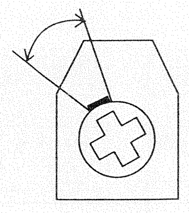
AM(MW) OSC
IC TUNER
IC101
FT2
AM(MW) IF
LOOP ANT
DIGIMARSCOPE
FM RF
FM OSC
TP1
FM ANT
TP2
GND
POWER AMP
IC601
FL2
S2
FUNCTION-SW
FM OSC
FCV1
FCV2
FCV3
FCV4
AM(MW) RF
FT102
FT101
FCT7
FCT6
(FIG.4)
SPK WIRE
CW2
L103
L102
FCT5
L101
SW RF
S1
BAND SW
S4
BEAT CUT
FM ST/MO
NOMAL/METAL,CR
(PB ONLY)
REC-SW
S3
SPEED ADJUSTMENT
JSV1
(FIG.3)
IC301
IC PRE/REC
JC502
JT501
LOOP ANT
S.S.G
V.T.V.M
OSCILLO SCOPE
WOW/FLUTTER &FREQUENCY COUNTER
3000 Hz
DUMMY(4ohm)
(FIG.1)
WOW/FLUTTER &FREQUENCY COUNTER
52 KHz
(FIG.2)
R/P Head
FIXED SCREW
ADJ' SCREW
(FIG.3)
DUMMY(4ohm)
V.T.V.M
OSCILLO SCOPE
(FIG.5)

2. CD ADJUSTMENT

1) CLV ADJUSTMENT

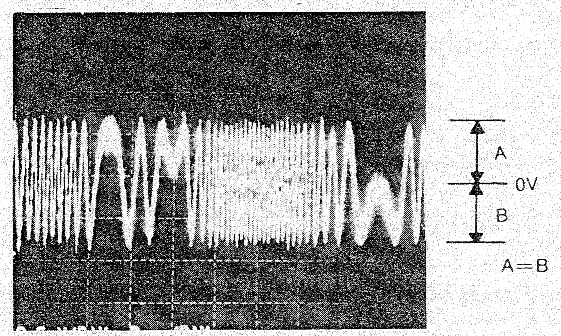
10: 1 damping probe.

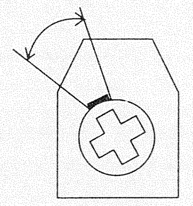
A. Turn power on without loading a disc.
B. Connect S2 (Asymetry ; short)
C. Connect TP10 to GND and TP2 to positive terminal on the Frequency Counter.
D. Adjust VR 1702 so that the Frequency Counter reads 4.28MHz ± (0.01MHz)
E. Disconnect S2.

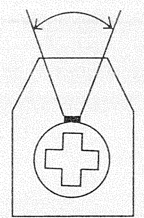

VR1702

2) EF BALANCE ADJUSTMENT (Power On)

A. Set Oscilloscope Time/Div to 2mS.
B. Set Oscilloscope Volt/Div to 0.5V.
C. Connect TP1 (Vref) to GND and TP4 (T.G) to positive terminal on the oscilloscope.
D. Press PLAY with loading a disc.
E. Adjust VR1704 all the way counter clockwise. (Intermittent sound)
F. Adjust VR1701 so that the waveform is equally symmetrical refer to waveform below.
G. Adjust VR1704 so that Sound comes out normally (Nearly mid-position of VR1704).




VR1701

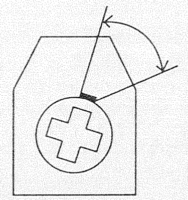

VR1703

3) FOCUS BIAS ADJUSTMENT

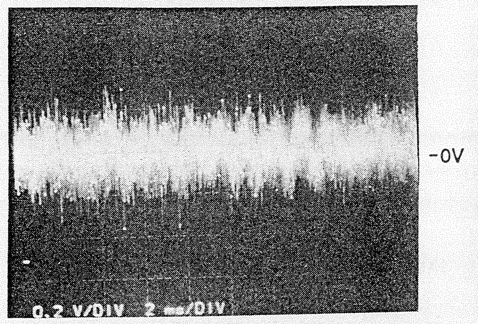
A. Turn power on without loading a disc.
B. Set Oscilloscope Vol/Div to 0.1 Vdc
C. Connect TP1 (Vref) to GND and TP3 (F.G) to positive terminal on the oscilloscope.
D. Adjust VR1703 so that the voltage is 0 mV DC on the oscilloscope.

4) TRACKING GAIN ADJUSTMENT (Power On)

A. Connect TP1 (Vref) to GND and TP4 (T.G) to positive terminal on the oscilloscope.
B. Press PLAY with loading a disc.
C. Adjust VR1704 so that Waveform is as shown in the figure below.

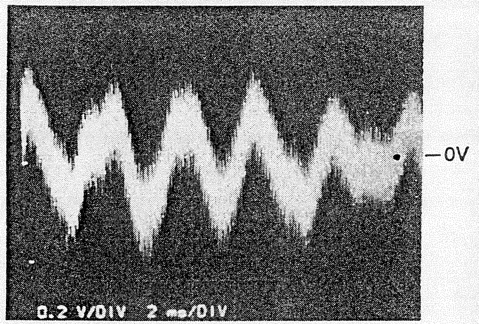

VR1704

(NORMAL WAVEFORM)



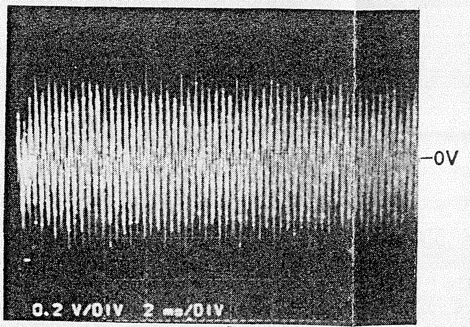
VOLT/DIV : 0.2V
TIME/DIV : 2mS

(LOW TRACKING GAIN)

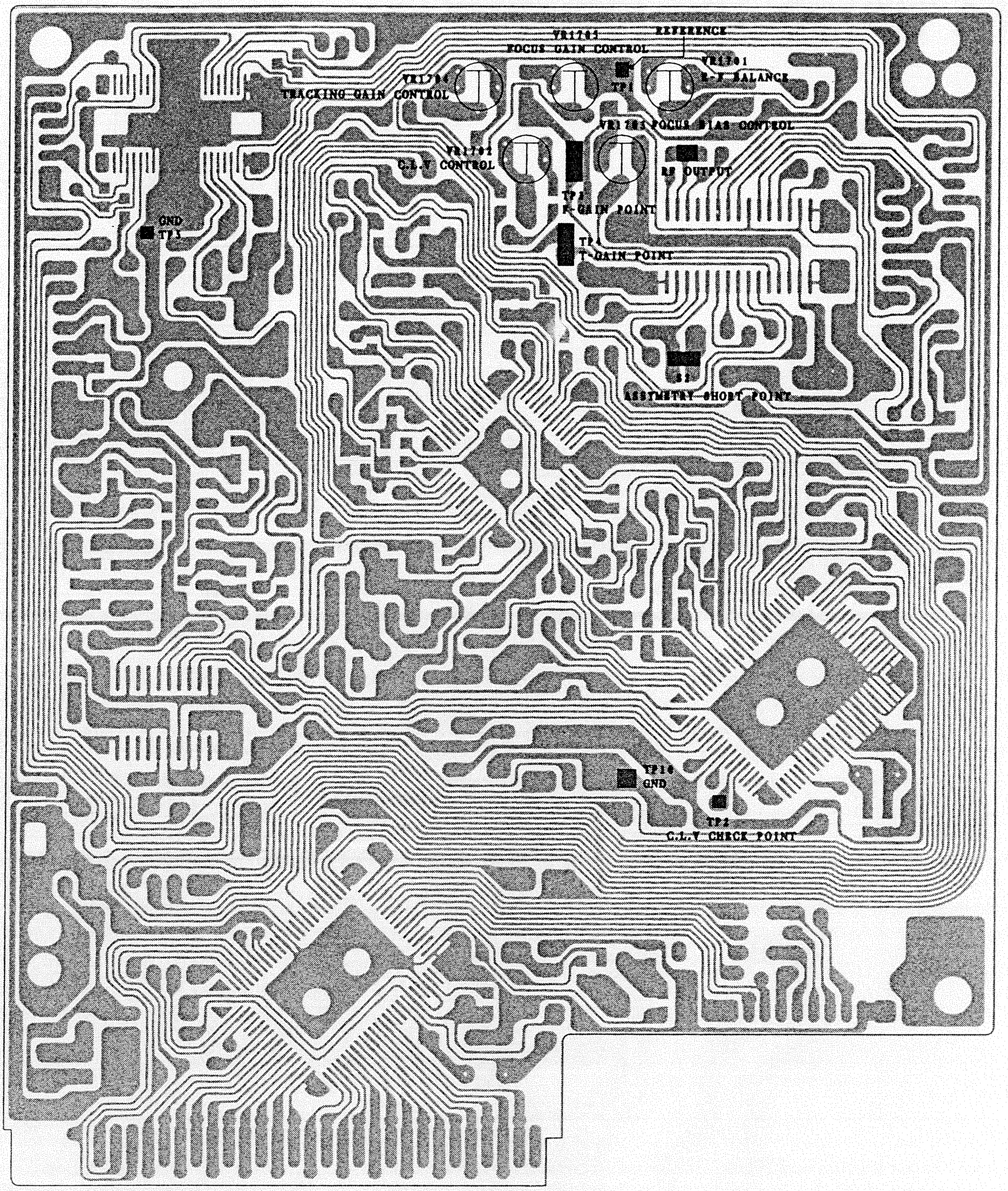


VOLT/DIV : 0.2V
TIME/DIV : 2mS

(HIGH TRACKING GAIN)

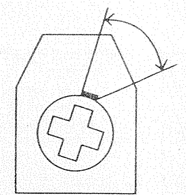


VOLT/DIV : 0.2V
TIME/DIV : 2mS

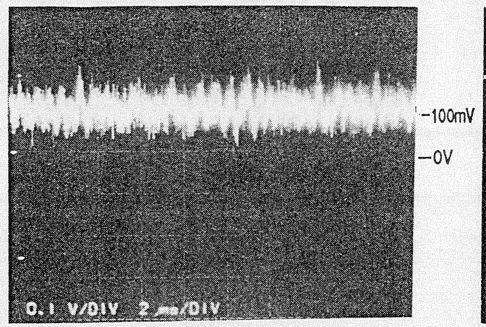

VR1705
FOCUS GAIN CONTROL
REFERENCE
VR1701
E-F BALANCE
VR1704
TRACKING GAIN CONTROL
TP1
VR1703 FOCUS BIAS CONTROL
VR1702
C.L.V CONTROL
RF OUTPUT
TP3
F-GAIN POINT
GND
TP1
TP4
T-GAIN POINT
S2
ASYMETRY SHORT POINT
TP10
GND
TP2
C.L.V CHECK POINT

5) FOCUS GAIN ADJUSTMENT (Power ON)

A. Connect TP1 (Vref) to GND and TP3 (F.G) to positive terminal on the oscilloscope.
B. Press PLAY with loading a disc.
C. Adjust VR1705 so that the waveform is as shown in the figure below.

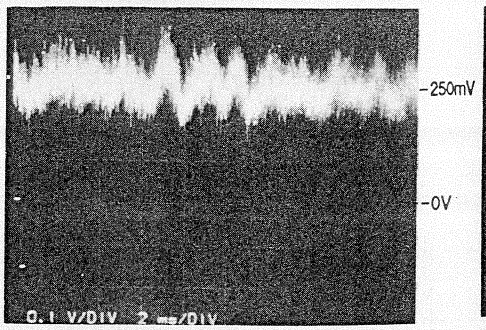

VR1705

(NORMAL WAVEFORM)



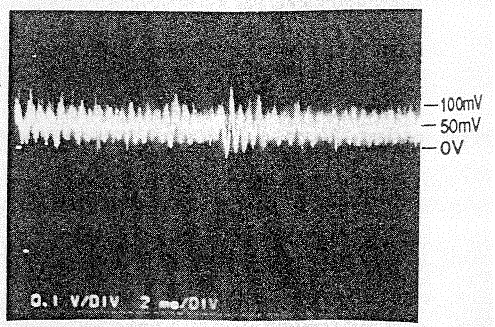
VOLT/DIV : 0.1V
TIME/DIV : 2mS

(LOW FOCUS GAIN)



VOLT/DIV : 0.1V
TIME/DIV : 2mS

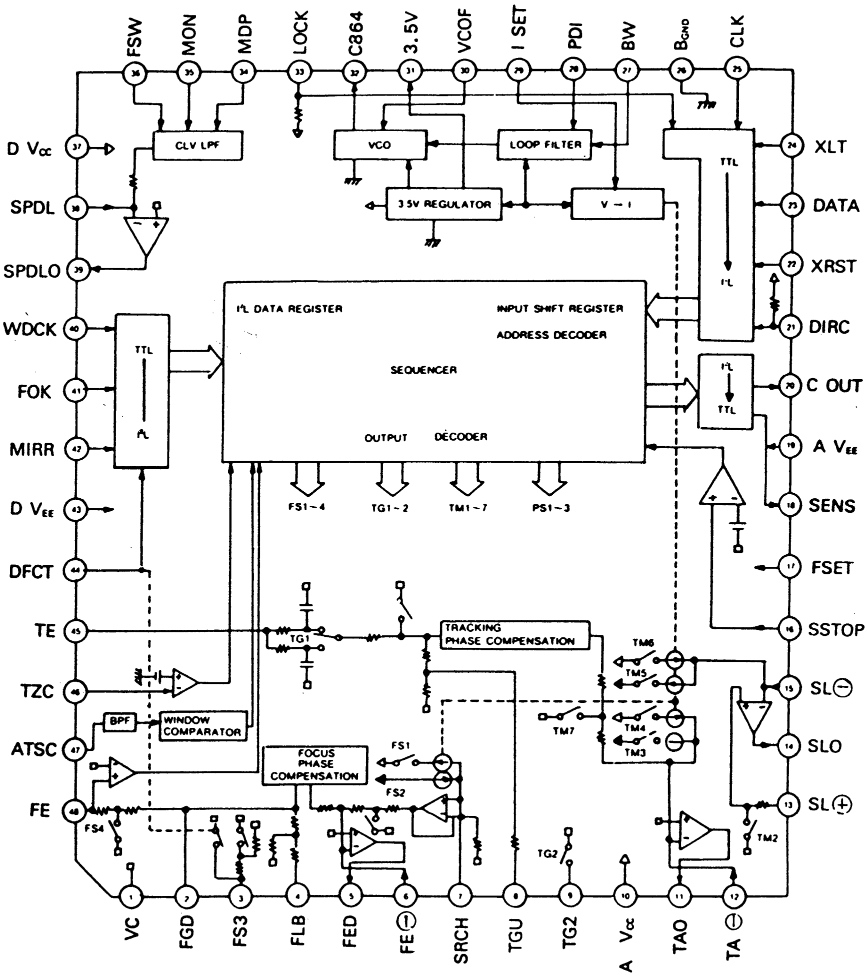
(HIGH FOUCS GAIN)



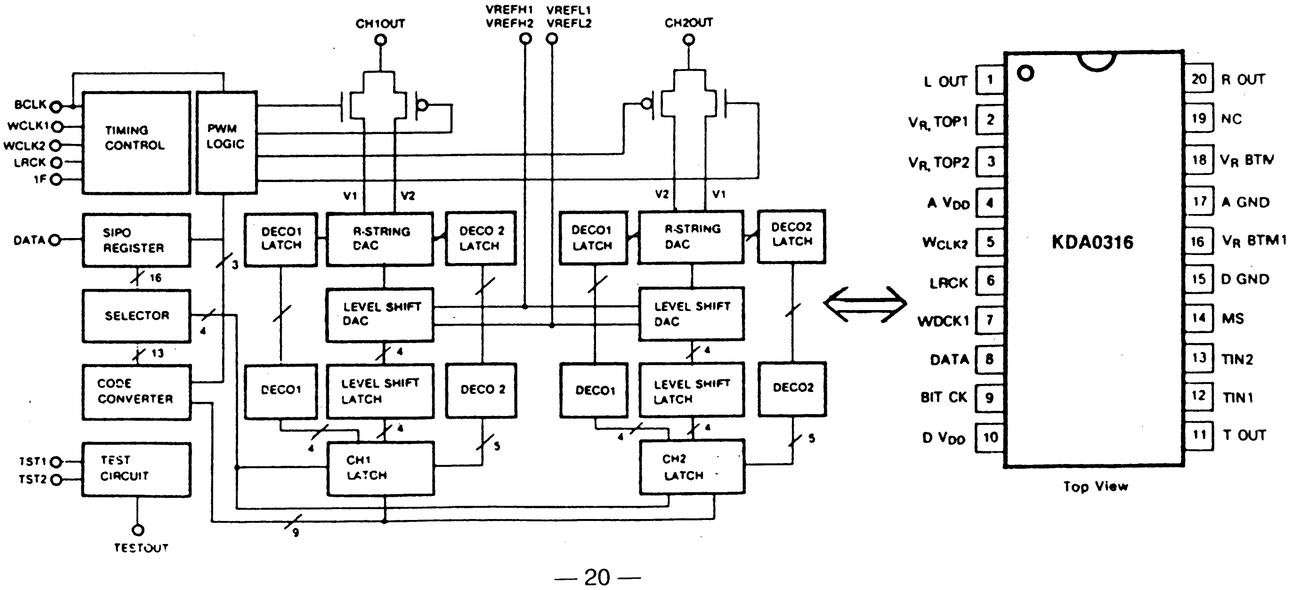
VOLT/DIV : 0.1V
TIME/DIV : 2mS

IC AND TR LEAD LAY OUT

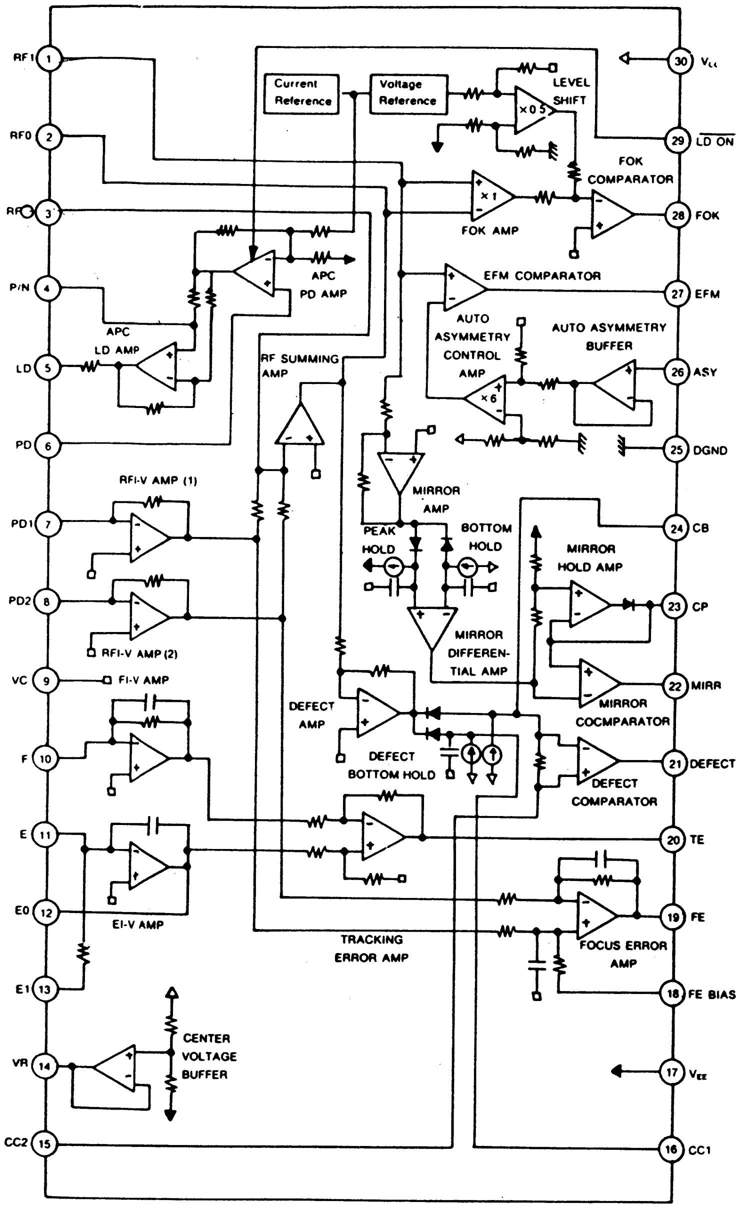
- KA8309 (SERVO SIGNAL PROCESSOR) : IC8309


FSW
MON
MDP
LOCK
C864
3.5V
VCOF
I SET
PDI
BW
B GND
CLK
D Vcc
SPDL
SPDLO
WDCK
FOK
MIRR
D VEE
DFCT
TE
TZC
ATSC
FE
XLT
DATA
XRST
DIRC
C OUT
A VEE
SENS
FSET
SSTOP
SL⊖
SLO
SL⊕
VC
FGD
FS3
FLB
FED
FE⊖
SRCH
TGU
TG2
A Vcc
TAO
TA⊖
CLV LPF
VCO
LOOP FILTER
3.5V REGULATOR
V – I
TTL
I²L
I²L DATA REGISTER
INPUT SHIFT REGISTER
ADDRESS DECODER
SEQUENCER
OUTPUT DECODER
FS1~4
TG1~2
TM1~7
PS1~3
TRACKING PHASE COMPENSATION
FOCUS PHASE COMPENSATION
BPF
WINDOW COMPARATOR
TG1
TG2
FS1
FS2
FS4
TM2
TM3
TM4
TM5
TM6
TM7

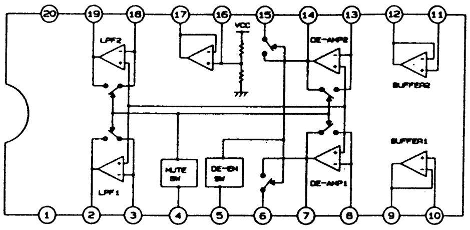
- KDA0316LD (D/A CONVERTOR) : IC0316


CH1OUT
VREFH1 VREFL1
VREFH2 VREFL2
CH2OUT
BCLK
WCLK1
WCLK2
LRCK
1F
DATA
TST1
TST2
TESTOUT
TIMING CONTROL
PWM LOGIC
SIPO REGISTER
SELECTOR
CODE CONVERTER
TEST CIRCUIT
DECO1 LATCH
R-STRING DAC
DECO 2 LATCH
LEVEL SHIFT DAC
DECO1
LEVEL SHIFT LATCH
DECO 2
CH1 LATCH
CH2 LATCH
V1
V2
16
13
3
4
5
9
L OUT 1
VR_L TOP1 2
VR_L TOP2 3
A VDD 4
WCLK2 5
LRCK 6
WDCK1 7
DATA 8
BIT CK 9
D VDD 10
20 R OUT
19 NC
18 VR BTM
17 A GND
16 VR BTM1
15 D GND
14 MS
13 TIN2
12 TIN1
11 T OUT
KDA0316
Top View

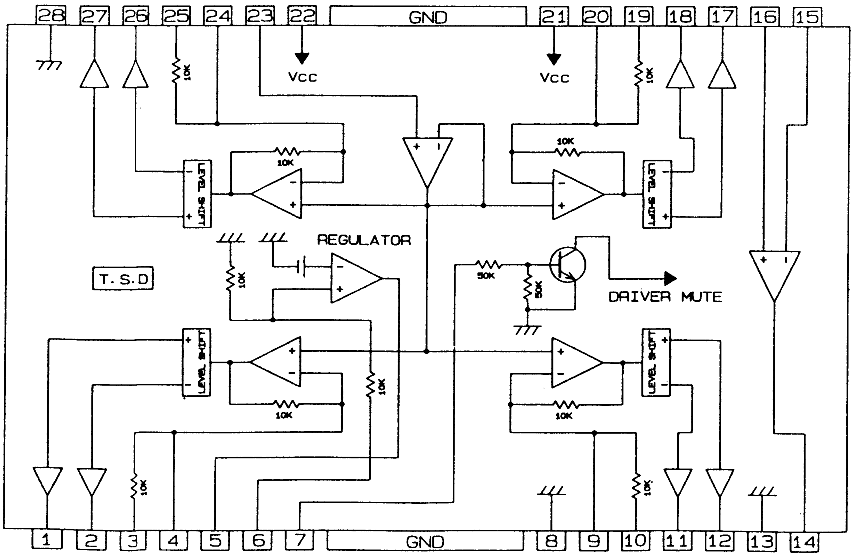
- KA9201(RF AMP) : IC9201


RF1 1
RF0 2
RF 3
P/N 4
LD 5
PD 6
PD1 7
PD2 8
VC 9
F 10
E 11
E0 12
E1 13
VR 14
CC2 15
30 V_{cc}
29 LD ON
28 FOK
27 EFM
26 ASY
25 DGND
24 CB
23 CP
22 MIRR
21 DEFECT
20 TE
19 FE
18 FE BIAS
17 V_{EE}
16 CC1
Current Reference
Voltage Reference
LEVEL SHIFT
×0.5
FOK COMPARATOR
×1
FOK AMP
APC PD AMP
APC LD AMP
EFM COMPARATOR
AUTO ASYMMETRY CONTROL AMP
AUTO ASYMMETRY BUFFER
×6
RF SUMMING AMP
RFI-V AMP (1)
RFI-V AMP (2)
FI-V AMP
MIRROR AMP
PEAK HOLD
BOTTOM HOLD
MIRROR HOLD AMP
MIRROR DIFFEREN-TIAL AMP
MIRROR COCMPARATOR
DEFECT AMP
DEFECT BOTTOM HOLD
DEFECT COMPARATOR
EI-V AMP
TRACKING ERROR AMP
FOCUS ERROR AMP
CENTER VOLTAGE BUFFER

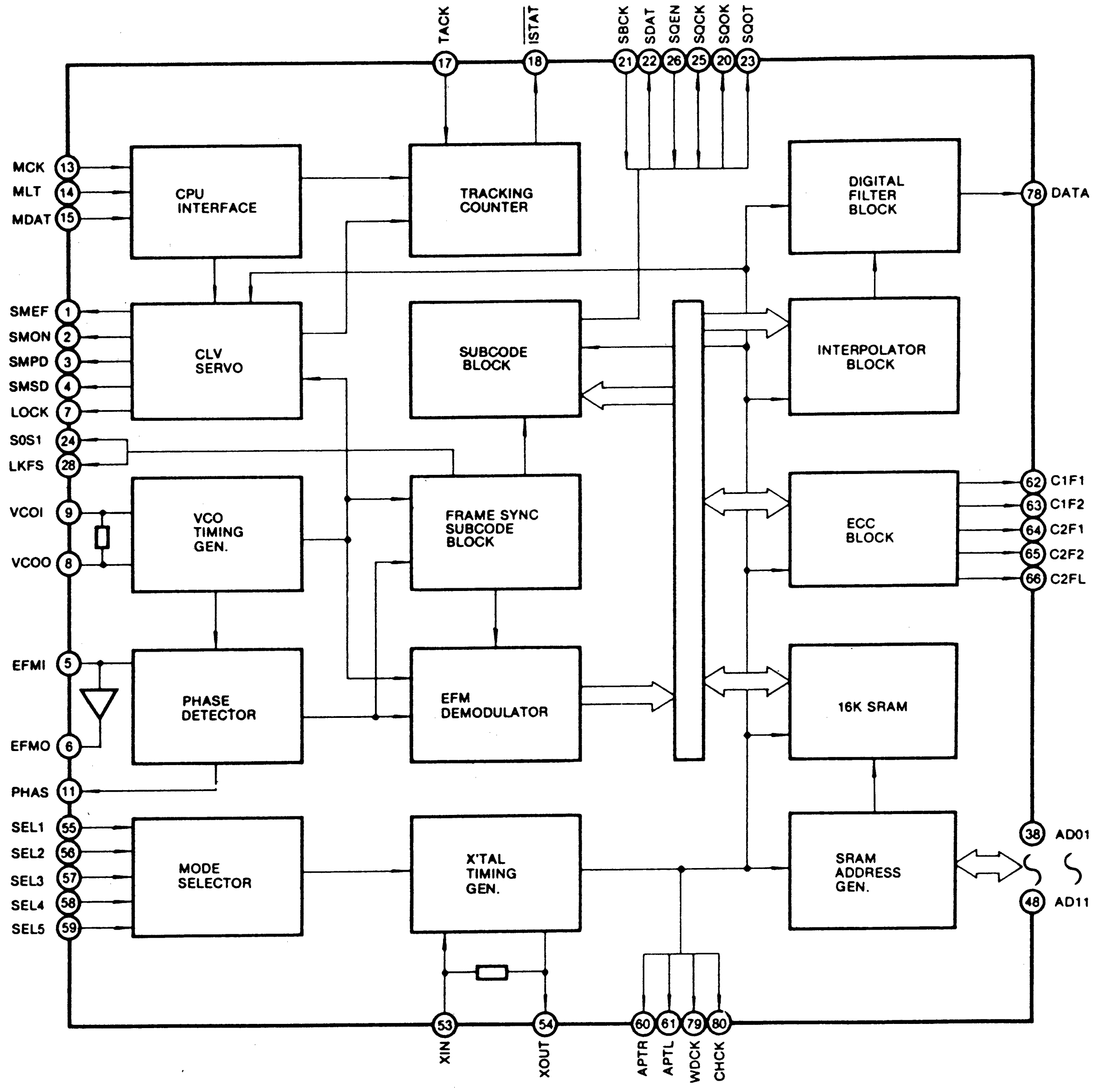
- KA9270(IC9270)


20
19
18
17
16
15
14
13
12
11
1
2
3
4
5
6
7
8
9
10
LPF2
LPF1
VCC
DE-AMP2
DE-AMP1
BUFFER2
BUFFER1
MUTE SW
DE-EM SW

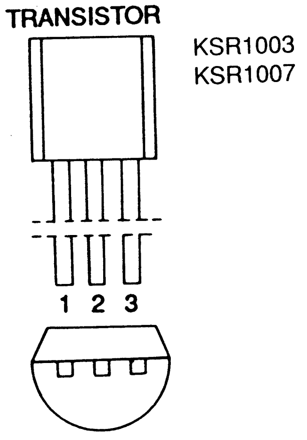
- BA6296FP : (IC6296)


28
27
26
25
24
23
22
GND
21
20
19
18
17
16
15
Vcc
Vcc
10K
LEVEL SHIFT
REGULATOR
T.S.D
50K
DRIVER MUTE
1
2
3
4
5
6
7
GND
8
9
10
11
12
13
14

• KS5990 (DIGITAL PROCESSOR) : IC5990

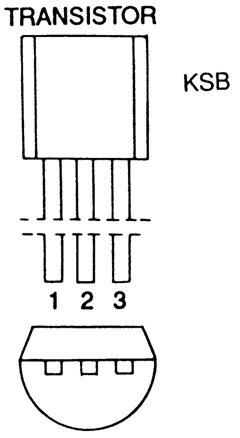


TACK
ISTAT
SBCK
SDAT
SQEN
SQCK
SQOK
SQOT
17
18
21
22
26
25
20
23
MCK 13
MLT 14
MDAT 15
CPU INTERFACE
TRACKING COUNTER
DIGITAL FILTER BLOCK
78 DATA
SMEF 1
SMON 2
SMPD 3
SMSD 4
LOCK 7
S0S1 24
LKFS 28
CLV SERVO
SUBCODE BLOCK
INTERPOLATOR BLOCK
VCOI 9
VCOO 8
VCO TIMING GEN.
FRAME SYNC SUBCODE BLOCK
ECC BLOCK
62 C1F1
63 C1F2
64 C2F1
65 C2F2
66 C2FL
EFMI 5
EFMO 6
PHASE DETECTOR
EFM DEMODULATOR
16K SRAM
PHAS 11
SEL1 55
SEL2 56
SEL3 57
SEL4 58
SEL5 59
MODE SELECTOR
X'TAL TIMING GEN.
SRAM ADDRESS GEN.
38 AD01
48 AD11
53 XIN
54 XOUT
60 APTR
61 APTL
79 WDCK
80 CHCK



TRANSISTOR
KSR1003
KSR1007
1 2 3

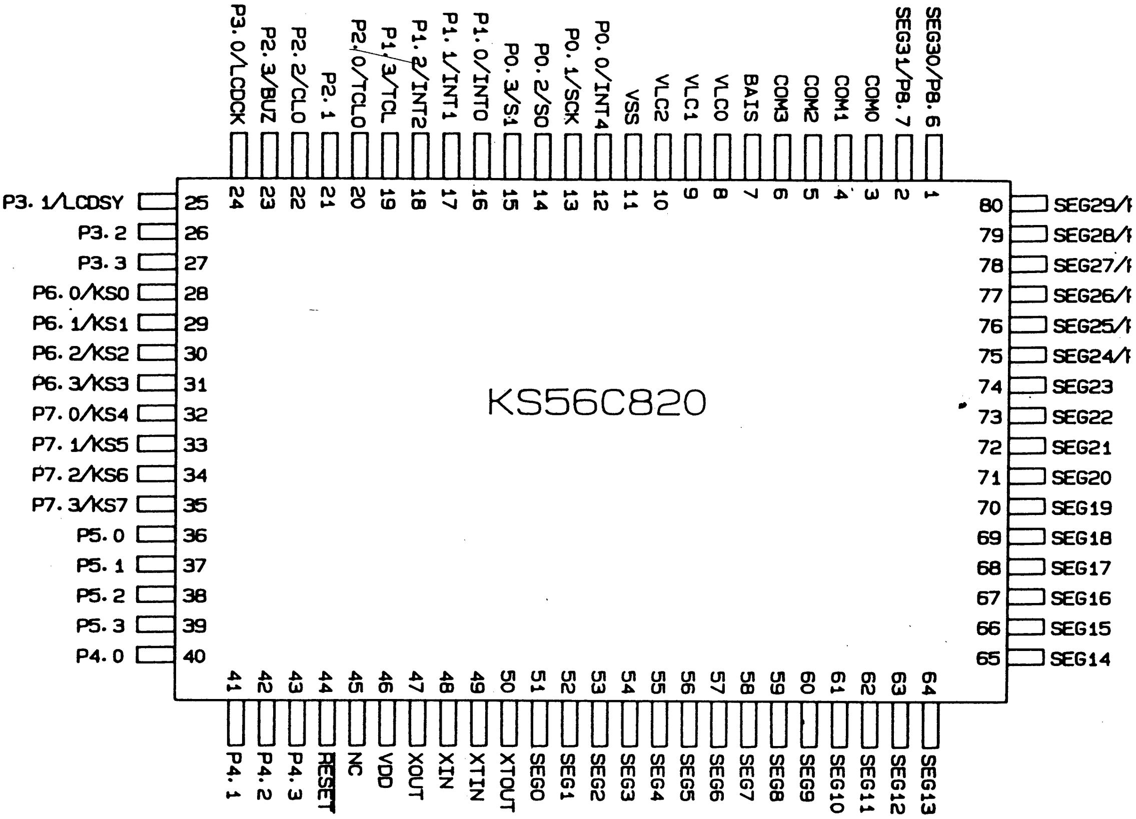
1. EMITTER 2. COLLECTOR 3. BASE



TRANSISTOR
KSB
1 2 3

1. EMITTER 2. BASE 3. COLLECTOR

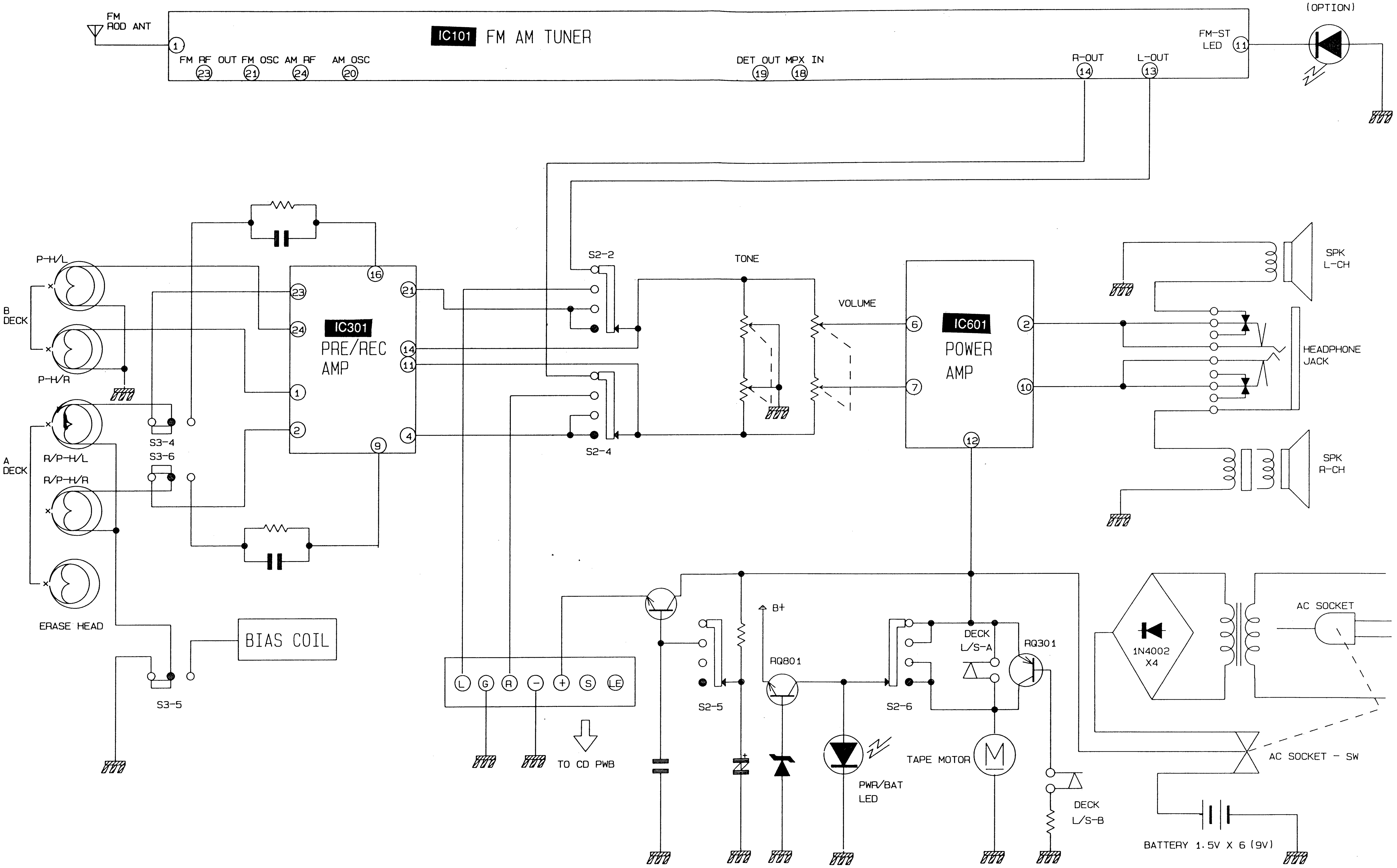
● KS56C820 (MICOM) : IC7530


KS56C820
1 SEG30/P8.6
2 SEG31/P8.7
3 COM0
4 COM1
5 COM2
6 COM3
7 BAIS
8 VLC0
9 VLC1
10 VLC2
11 VSS
12 P0.0/INT4
13 P0.1/SCK
14 P0.2/SO
15 P0.3/SI
16 P1.0/INT0
17 P1.1/INT1
18 P1.2/INT2
19 P1.3/TCL
20 P2.0/TCLO
21 P2.1
22 P2.2/CLO
23 P2.3/BUZ
24 P3.0/LCDCK
25 P3.1/LCDSY
26 P3.2
27 P3.3
28 P6.0/KS0
29 P6.1/KS1
30 P6.2/KS2
31 P6.3/KS3
32 P7.0/KS4
33 P7.1/KS5
34 P7.2/KS6
35 P7.3/KS7
36 P5.0
37 P5.1
38 P5.2
39 P5.3
40 P4.0
41 P4.1
42 P4.2
43 P4.3
44 RESET
45 NC
46 VDD
47 XOUT
48 XIN
49 XTIN
50 XTOUT
51 SEG0
52 SEG1
53 SEG2
54 SEG3
55 SEG4
56 SEG5
57 SEG6
58 SEG7
59 SEG8
60 SEG9
61 SEG10
62 SEG11
63 SEG12
64 SEG13
65 SEG14
66 SEG15
67 SEG16
68 SEG17
69 SEG18
70 SEG19
71 SEG20
72 SEG21
73 SEG22
74 SEG23
75 SEG24/
76 SEG25/
77 SEG26/
78 SEG27/
79 SEG28/
80 SEG29/

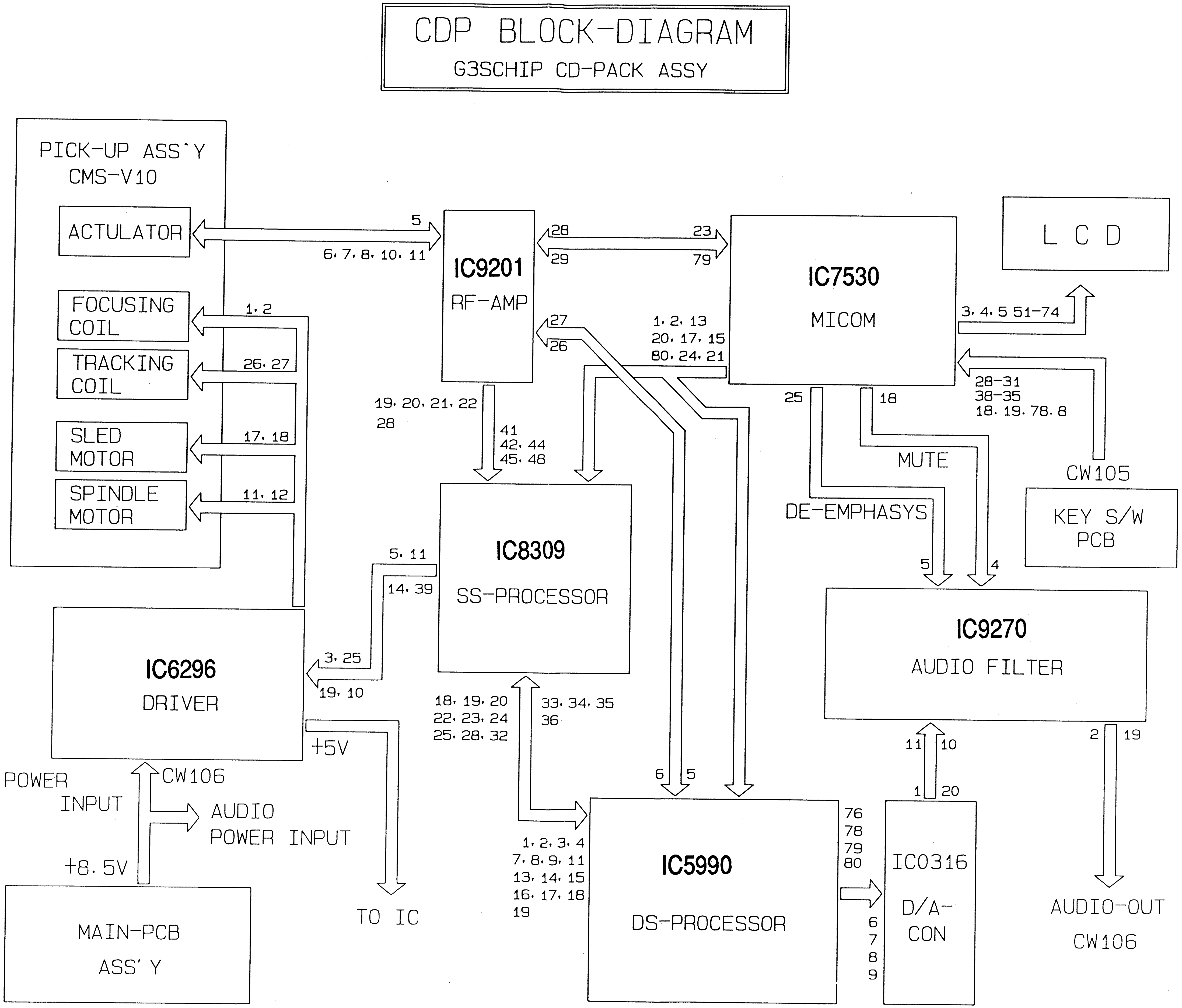
Pin Name	Pin Description	
P1.0-P1.3	4-bit Input	Internal pull-up resistor can be specified in 4-bit unit by solftware
P2, P7	4-bit Input/Output	
P3, P6	I/O mode selectable in 1-bit unit by software	
P4, P5	4-bit input/output, N-ch open drain	
P8.0-P8.7	Outputs in 1-bit unit (shared with segment outputs)	
SEG0-SEG23	Segment output for LCD display	
SEG24-SEG31	Segment output for LCD display (shared with Port 8)	
COM0-COM3	Common signal output for LCD display	
VLC0-VLC2	LCD power supply pin	
BIAS	LCD power supply control pin for 3/5V operating	
LCDCK	LCD clock output for display expansion	
LCDSY	LCD sync. clock output for display expansion	
TCL	Timer/Counter external clock input	
TCLO	Timer/Counter clock output	
INT0, 1, 2, 4	External interrupt input	
CLO	Clock output	
BUZ	2KHz clock output for buzzer	
KS0-KS7	Semi-interrupt input detecting external falling edge	
SCK, SI, SO	SCK: serial clock, SI: serial input, SO: serial output	
X_{IN}, X_{OUT}	Crystal/Ceramic or RC clock I/O for Main-system clock	
XT_{IN1} XT_{OUT}	Crystal clock I/O pins for sub-system clock	

■ BLOCK DIAGRAM

1. RADIO CASSETTE SECTION

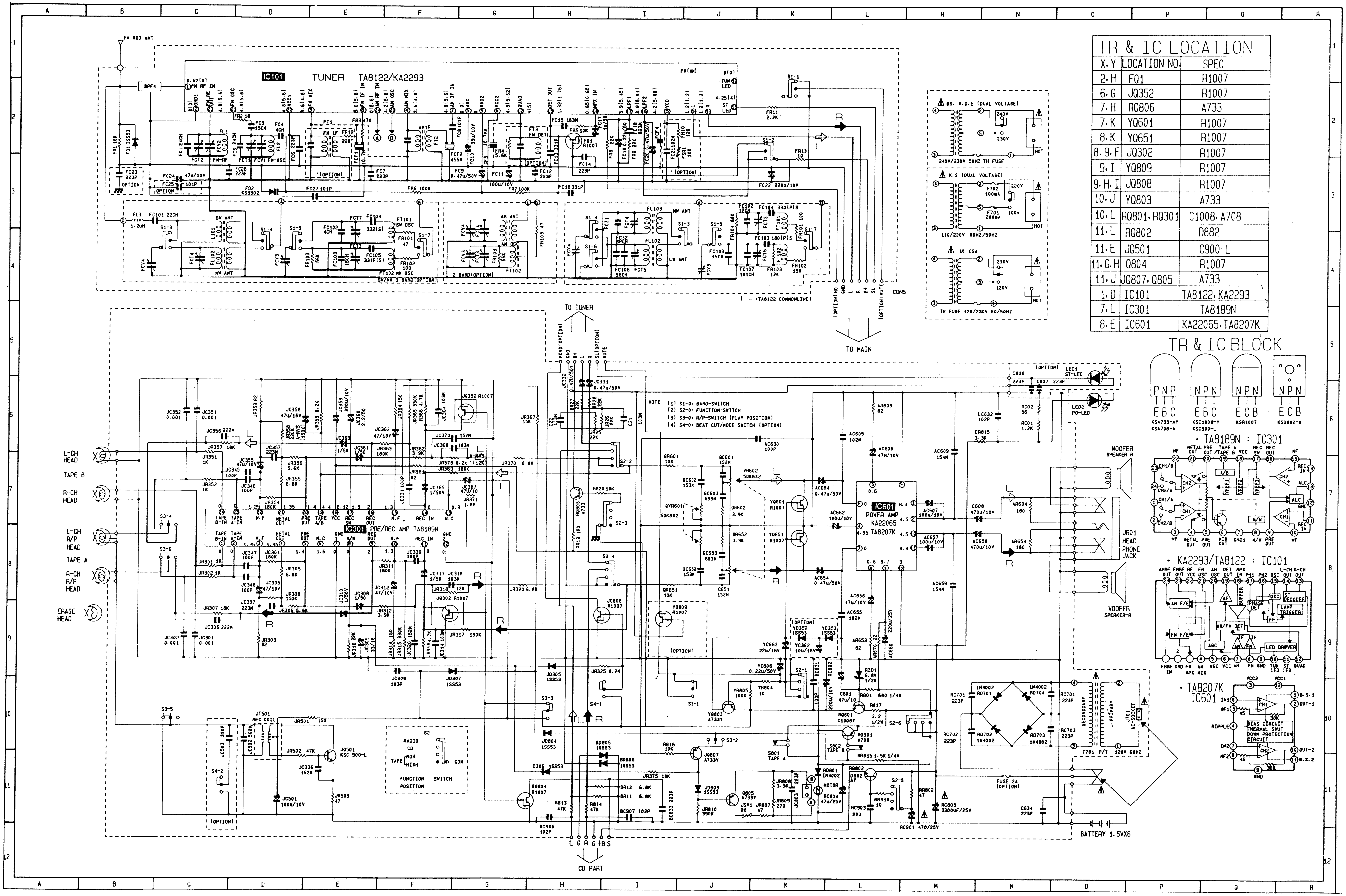

FM ROD ANT
IC101 FM AM TUNER
1
FM RF OUT 23
FM OSC 21
AM RF 24
AM OSC 20
DET OUT 19
MPX IN 18
R-OUT 14
L-OUT 13
FM-ST LED 11
(OPTION)
P-H/L
B DECK
P-H/R
R/P-H/L
A DECK
R/P-H/R
ERASE HEAD
S3-4
S3-6
S3-5
BIAS COIL
IC301 PRE/REC AMP
16
23
24
1
2
21
14
11
4
9
S2-2
S2-4
TONE
VOLUME
IC601 POWER AMP
6
7
2
10
12
SPK L-CH
HEADPHONE JACK
SPK R-CH
L
G
R
−
+
S
LE
TO CD PWB
B+
S2-5
RQ801
S2-6
DECK L/S-A
RQ301
PWR/BAT LED
TAPE MOTOR
M
DECK L/S-B
1N4002 X4
AC SOCKET
AC SOCKET - SW
BATTERY 1.5V X 6 (9V)

2. CD SECTION


CDP BLOCK-DIAGRAM
G3SCHIP CD-PACK ASSY
PICK-UP ASS'Y
CMS-V10
ACTULATOR
FOCUSING COIL
TRACKING COIL
SLED MOTOR
SPINDLE MOTOR
5
6, 7, 8, 10, 11
1, 2
26, 27
17, 18
11, 12
IC9201
RF-AMP
28
29
23
79
27
26
IC7530
MICOM
L C D
3, 4, 5 51-74
1, 2, 13
20, 17, 15
80, 24, 21
28-31
38-35
18, 19, 78, 8
25
18
MUTE
DE-EMPHASYS
CW105
KEY S/W PCB
5
4
19, 20, 21, 22
28
41
42, 44
45, 48
IC8309
SS-PROCESSOR
5, 11
14, 39
3, 25
19, 10
IC6296
DRIVER
+5V
IC9270
AUDIO FILTER
11
10
1
20
2
19
18, 19, 20
22, 23, 24
25, 28, 32
33, 34, 35
36
6
5
POWER INPUT
CW106
AUDIO POWER INPUT
+8.5V
MAIN-PCB ASS'Y
TO IC
1, 2, 3, 4
7, 8, 9, 11
13, 14, 15
16, 17, 18
19
IC5990
DS-PROCESSOR
76
78
79
80
6
7
8
9
IC0316
D/A-CON
AUDIO-OUT
CW106

■ SCHEMATIC DIAGRAM

1. RADIO CASSETTE SECTION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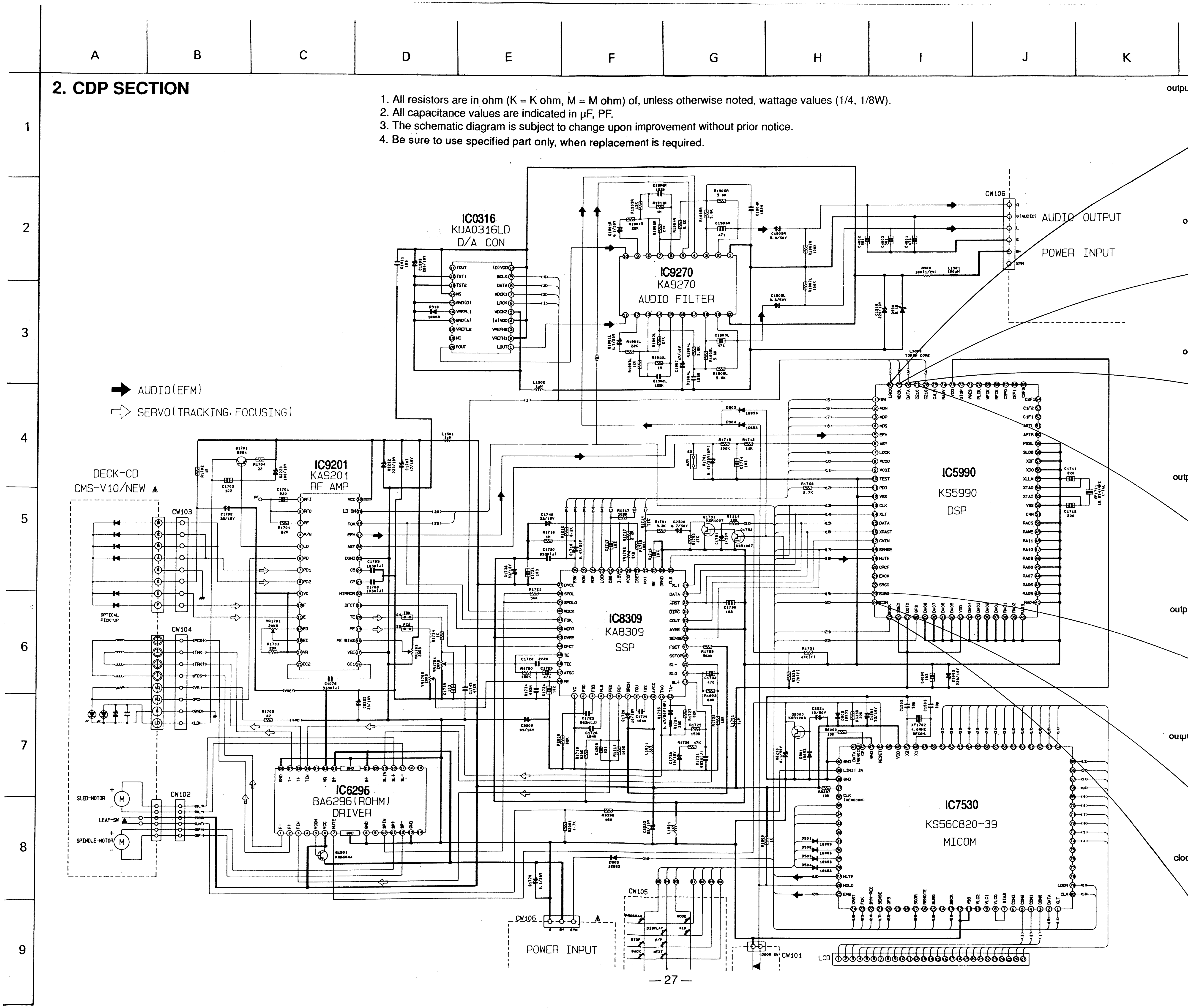
9
10
11
12
FM ROD ANT
BPF4
IC101 TUNER TA8122/KA2293
FM(AM)
TUN LED
ST LED
S1-1
S1-2
FR11 2.2K
FR13 10
FC22 220u/10V
FR6 100K
FC27 101P
FR7 100K
FC16 331P
FD2 KS3302
FL3 FC101 22CH
1.2uH
S1-3
S1-4
S1-5
S1-6
S1-7
SW ANT
MW ANT
AM ANT
LW ANT
FCT7
FC104
FT101 SW OSC
FR101 47
FC105 331P(S)
FR102 100
FT102 MW OSC
SW/MW 3 BAND(OPTION)
2 BAND(OPTION)
FL103
FL102
FC106 FCT5 56CH
FC107 101CH
FR103 12K
FR102 150
FC103 180(P)S
(--- (TA8122 COMMONLINE)
CON5
(OPTION) MO
GND
R
B+
SL
MUTE
(OPTION) MUTE
TO MAIN
TO TUNER
MONO (OPTION)
GND
B+
L
R
SL (OPTION)
MUTE
BS. V.D.E (DUAL VOLTAGE)
240V
230V
HOT
240V/230V 50HZ TH FUSE
K.S (DUAL VOLTAGE)
F702 100mA
220V
F701 200mA
100V
110/220V 60HZ/50HZ
UL CSA
120V
TH FUSE 120/230V 60/50HZ
L-CH HEAD
TAPE B
R-CH HEAD
S3-4
S3-6
L-CH R/P HEAD
TAPE A
R-CH R/P HEAD
ERASE HEAD
JC352 0.001
JC351 0.001
JC356 222M
JR357 10K
JR351 1K
JC355 47u/10V
JC345 100P
JR352 1K
JC346 100P
JC357 223M
JR356 5.6K
JR355 6.8K
JC358 47u/16V
JR354 180K
JR359 8.2K
JC359 220u/10V
JC360 2.2/50
JC363 1/50
JC361 1/50
JR363 180K
JC362 47/10V
JR362 3.9K
JC370 152M
JC368 103M
JR378 8.2K
JR369 180K
JC365 1/50V
JC367 47u/10
JR371 1.8K
JQ352 R1007
JR367 15K
JR370 6.8K
IC301 PRE/REC AMP TA8189N
TAPE B-IN
TAPE A-IN
N.F
METAL OUT
PRE OUT
TAPE A/B
VCC
REC OUT
REC IN
ALC
GND
JR301 1K
JR302 1K
JC347 100P
JC304 180K
JC305 6.8K
JC348 100P
JC307 223M
JR305 6.8K
JR308 150K
JR306 5.6K
JR307 18K
JC306 222M
JR303 82
JC302 0.001
JC301 0.001
JC310 1/50V
JC308 1/50
JC312 47/10V
JR311 180K
JC330 100P
JC313 1/50
JC318 103M
JR318 12K
JQ302 R1007
JR312 3.9K
JR317 180K
JR320 6.8K
JC908 103P
JD307 1SS53
JD305 1SS53
JR325 8.2K
S3-5
JT501 REC COIL
JR501 150
JR502 47K
JQ501 KSC 900-L
JC336 152M
JC501 100u/10V
JR503 47
S4-2
(OPTION)
S2 RADIO CD TAPE NOR HIGH COM FUNCTION SWITCH POSITION
JC332 0.47u/50V
JC331 0.47u/50V
C22
C21
103M
S2-2
S2-3
S2-4
RR20 10K
RQ806 A733
RR19 120
JC808 R1007
QR601 10K
QC601 152M
QC602 153M
QC603 683M
VR602 50KBX2
QVR601 50KBX2
QR602 3.9K
QR652 3.9K
QC653 683M
QC652 153M
QR651 10K
QC651 152M
YQ601 R1007
YQ651 R1007
YQ809 R1007
AC630 100P
AC605 102M
AC606 47K/10V
AR603 82
AC604 0.47u/50V
AC662 100u/10V
IC601 POWER AMP KA22065 TA8207K
AC607 100u/10V
AC657 100u/10V
AC654 0.47u/50V
AC656 47u/10V
AC655 102M
AC653 82
AC650 220u/25V
AC609 154M
AC608 470u/10V
AR604 180
AC658 470u/10V
AR654 180
AC659 154M
LC632 102P
RC02 56
RC01 1.2K
CR815 3.3K
C808 223P
C807 223P
LED1 ST-LED
LED2 PO-LED
WOOFER SPEAKER-R
WOOFER SPEAKER-R
J601 HEAD PHONE JACK
(OPTION) YD352 1SS53
YD353 1SS53
YC362 10u/16V
YC663 22u/16V
YC806 0.22u/50V
S2-1
S3-1
YR805 100K
YR804 1K
YQ803 A733Y
RZD1 6.8V 1/2W
C801 47u/10
RR801 680 1/4W
RR817 2.2 1/2W
RR801 C1008Y
RQ301 A708
S2-6
S802 TAPE B
RR815 1.5K 1/4W
S801 TAPE A
RD801 1N4002
RQ802 D882
S2-5
MOTOR
RC804 47u/25V
RR802 47
RC805 3300uF/25V
RC903 223
RC901 470/25V
RR816 10
RC701 223P
RD701 1N4002
RD704 1N4002
RC702 223P
RD702 1N4002
RD703 1N4002
RC703 223P
SECONDARY
PRIMARY
J701 AC SOCKET
T701 P/T 120V 60HZ
FUSE 2A (OPTION)
C634 223P
BATTERY 1.5VX6
S3-3
S4-1
S3-2
JD804 1SS53
BD805 1SS53
BD806 1SS53
D306 1SS53
JR375 18K
JD803 1SS53
JR816 10K
JR807 A733Y
RQ805 A733Y
JSV1 2K
JR807 47
JR808 3.3K
JR809 270
JC803 223P
JR810 390K
BQ804 R1007
BR13 47K
BR14 47K
BR12 6.8K
BR11 6.8K
BC907 102P
BC803 223P
BC906 102P
L G R G +B S
CD PART
TR & IC BLOCK
PNP
NPN
NPN
NPN
EBC
EBC
ECB
ECB
KSA733-AY KSA708-A
KSC1008-Y KSC900-L
KSR1007
KSD882-0
• TA8189N : IC301
• KA2293/TA8122 : IC101
AM/FM DET
AM F/E
FM F/E
AGC
PHASE DET
OSC
ST DECODER
LAMP TRIGGER
FF
LED DRIVER
BUFFER
• TA8207K IC601
BIAS CIRCUIT THERMAL SHUT DOWN PROTECTION CIRCUIT
IN1
NF1
RIPPLE
IN2
NF2
B.S.1
OUT-1
OUT-2
B.S.2
VCC2
VCC1
GND
30K
45

TR & IC LOCATION		
X, Y	LOCATION NO.	SPEC
2, H	FQ1	R1007
6, G	JQ352	R1007
7, H	RQ806	A733
7, K	YQ601	R1007
8, K	YQ651	R1007
8. 9, F	JQ302	R1007
9, I	YQ809	R1007
9, H, I	JQ808	R1007
10, J	YQ803	A733
10, L	RQ801, RQ301	C1008, A708
11, L	RQ802	D882
11, E	JQ501	C900-L
11, G.H	Q804	R1007
11, J	JQ807, Q805	A733
1, D	IC101	TA8122, KA2293
7, L	IC301	TA8189N
8, E	IC601	KA22065, TA8207K

NOTE
(1) S1-0: BAND-SWITCH
(2) S2-0: FUNCTION-SWITCH
(3) S3-0: R/P-SWITCH (PLAY POSITION)
(4) S4-0: BEAT CUT/MODE SWITCH (OPTION)

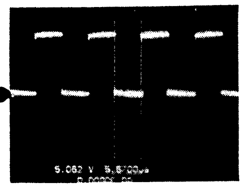
2. CDP SECTION

1. All resistors are in ohm (K = K ohm, M = M ohm) of, unless otherwise noted, wattage values (1/4, 1/8W).
2. All capacitance values are indicated in µF, PF.
3. The schematic diagram is subject to change upon improvement without prior notice.
4. Be sure to use specified part only, when replacement is required.



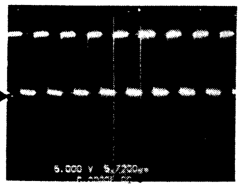
A
B
C
D
E
F
G
H
I
J
K
L
M
1
2
3
4
5
6
7
8
9
IC0316
KUA0316LD
D/A CON
IC9270
KA9270
AUDIO FILTER
CW106
AUDIO OUTPUT
POWER INPUT
AUDIO(EFM)
SERVO(TRACKING·FOCUSING)
DECK-CD
CMS-V10/NEW
CW103
CW104
OPTICAL PICK-UP
IC9201
KA9201
RF AMP
IC8309
KA8309
SSP
IC5990
KS5990
DSP
IC6296
BA6296(ROHM)
DRIVER
CW102
SLED-MOTOR
LEAF-SW
SPINDLE-MOTOR
IC7530
KS56C820-39
MICOM
CW105
PROGRAM
DISPLAY
STOP
BACK
MODE
P/P
NEXT
CW106
POWER INPUT
DOOR SW
CW101
LCD

output of LRCK



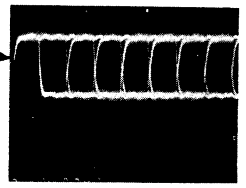
VOLT/DIV : 2V
TIME/DIV : 5 µS

output of WDCK



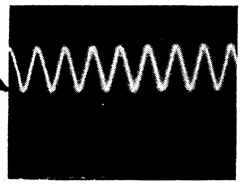
VOLT/DIV : 2V
TIME/DIV : 5 µS

output of DATA



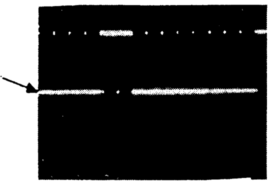
VOLT/DIV : 2V
TIME/DIV : 0.2 µS

output of Bit clock



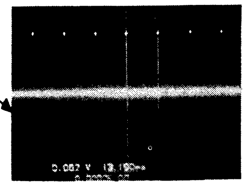
VOLT/DIV : 2V
TIME/DIV : 0.2 µS

output of sub-code Q



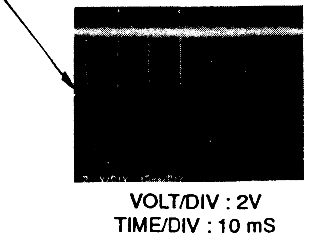
VOLT/DIV : 2V
TIME/DIV : 10mS

output of sub-code synchro.



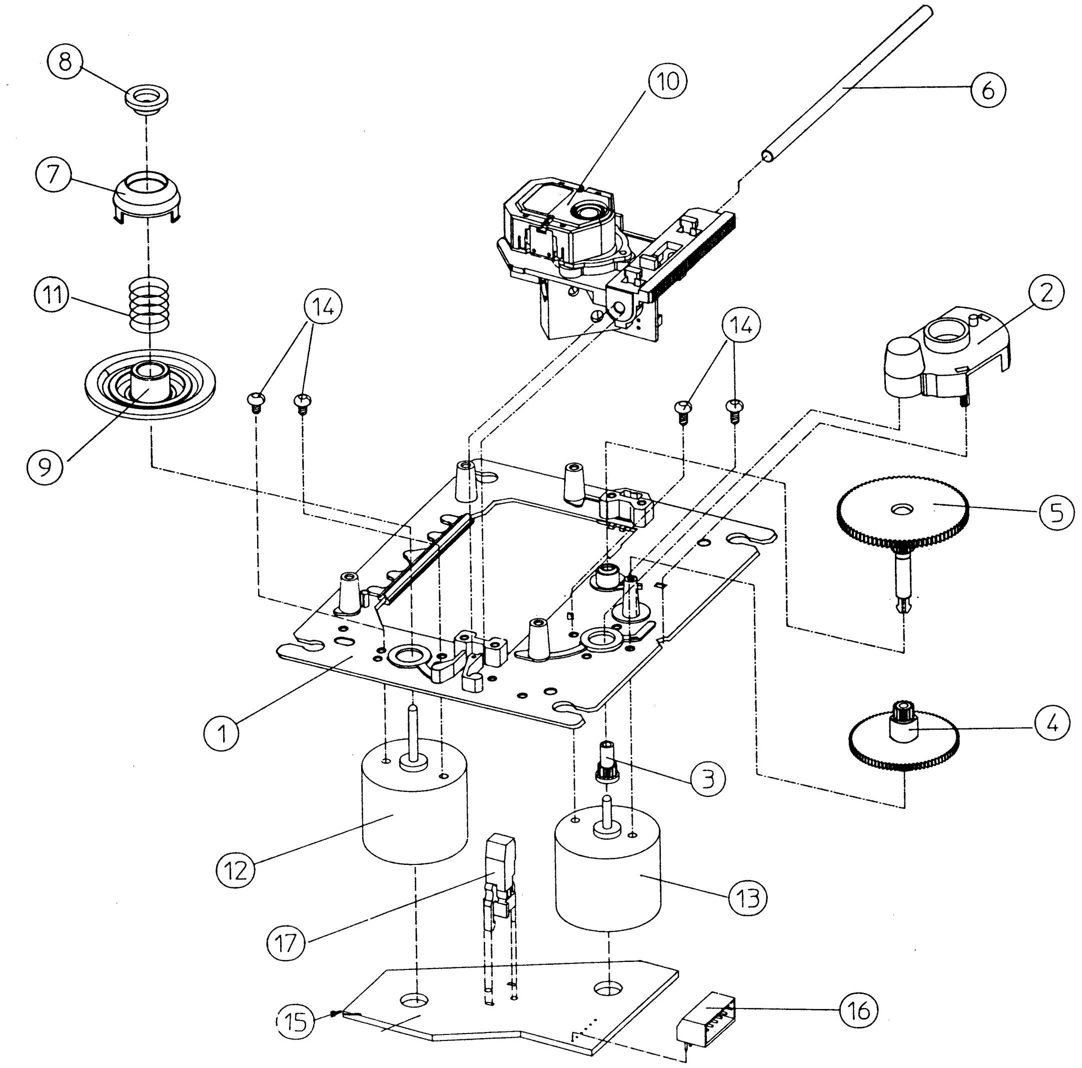
VOLT/DIV : 2V
TIME/DIV : 10 mS

clock for reading sub-code Q



VOLT/DIV : 2V
TIME/DIV : 10 mS

■ CD DECK EXPLODED VIEW (CMS-V30A)



• PARTS LIST

NO	CODE NO.	DESCRIPTION & SPECIFICATION	Q'TY
1	12201-0052-00	CHASSIS-DECK (M) ; CMS-V30 BLK POM	1
2	13313-0057-00	COVER-GEAR ; CMS-V30 BLK ABS	1
3	11474-0017-00	GEAR (A) ; CMS-V30 M0.3 Z13 SP POM	1
4	11474-0018-00	GEAR (B) ; SMS-V30 M0.3 Z14 /Z82 SP POM	1
5	11474-0019-00	GEAR (C) ; CMS-V30 M0.3 Z16/Z90 SP POM	1
6	11404-0041-00	SHAFT-PU ; CMS-V30 D30 L79 SUS420J2	1
7	15253-503-010	CENTER-RING ; ABS +GS 20%	1
8	16034-504-510	CENTER-KNOB ; ABS 94HB	1
9	15253-503-520	T/TABLE (M) ; ABS +GS 20%	1
10	*SOH90T4N	LASER PICK-UP ; POTATABLE CDP	1
11	16674-559-410	SPRING-T/TABLE ; OS STS-W PI0.4 D11 O/L 11.0 CMS-V10	1
12	14769-057-240	MOTOR-SPINDLE ; RF -310T (SHAFT 18.9)	1
13	14769-057-250	MOTOR-FEED ; RF -310T (SHAFT 10.9)	1
15	16029-0147-00	PCB-SUB ; CMS-V30A T1.6 W163 L108 FR-1	1/8
16	13349-139-061	CONNECTOR-WAFER ; 53015 -0610 2M/M	1
17	13564-601-100	SWITCH-LEAF ; MSW-1731CVC	1

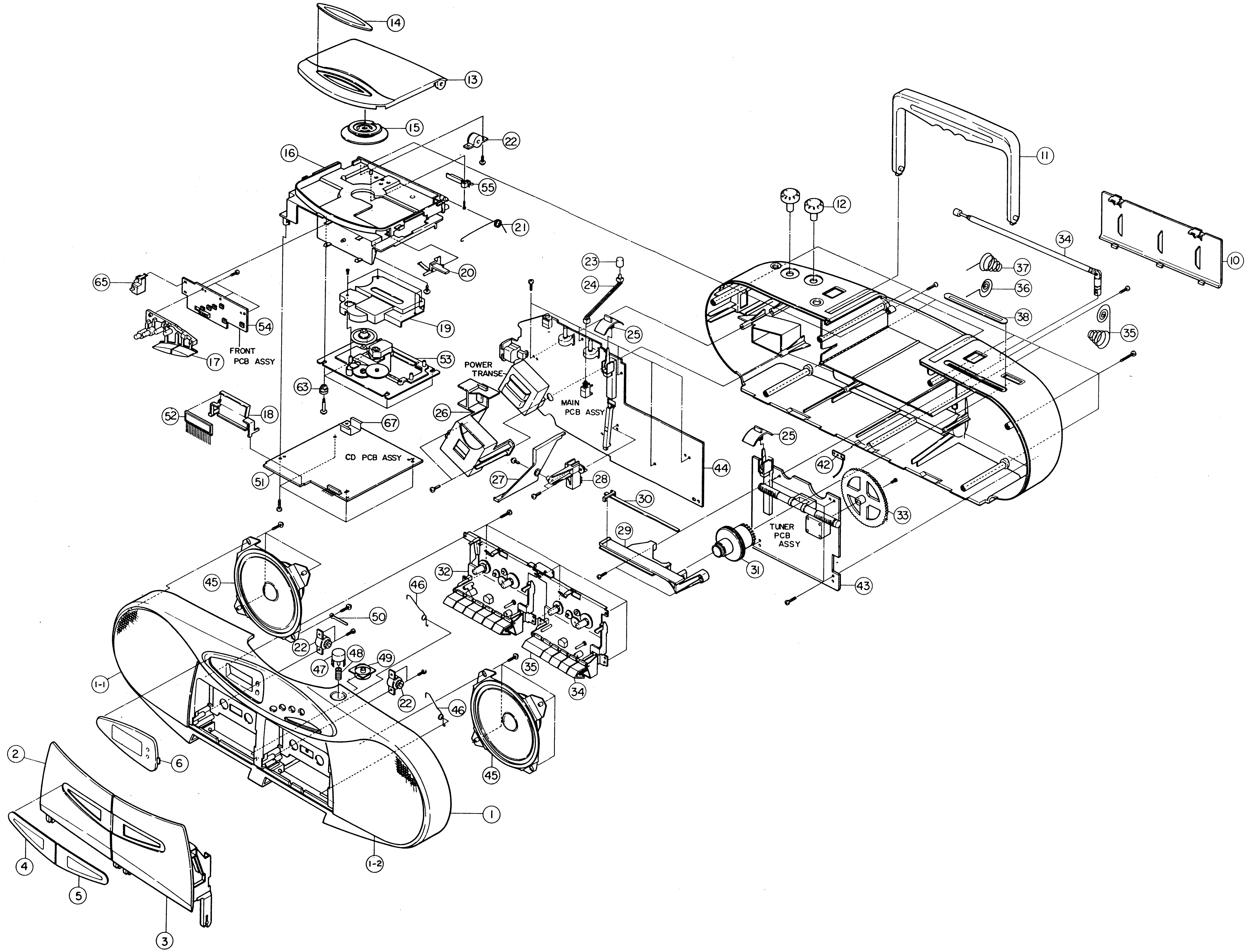
Parts which are not described in the CD DECK list are not serviceable.
If you need any other parts except those described, apply CD DECK ASSY.

■ CD PACK PARTS LIST

⚠ indicates parts for circuit safe guarding purpose. Therefore, when replacing, be sure to use specified parts only.

LOCATION	CODE NO.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
IC0316	12109-303-150	IC-DAC ; KDA0316LD (BULK)	1	
IC5990	12119-203-770	IC-DS PROCESSOR ; KS5990/KS59910	1	
IC8309	12119-203-780	IC-SS PROCESSOR ; KA8309	1	
IC6296	B4012-0073	IC-LINEAR ; BA6296FP	1	
IC9201	12119-203-790	IC-RF AMP ; KA9201	1	
IC9270	A4012-0064	IC-AUDIO FILTER ; KA9270	1	
IC7530	12109-303-691	IC-MICOM ; KS56C820-39	1	
Q1501	12149-202-050	TRANSISTOR ; KSB564A-Y	1	
Q2000	12159-301-780	TR-DIGITAL ; KSR1003	1	
Q1791, 1792	12159-301-800	TR-DIGITAL ; KSR1007	2	
D901~D905,D910	12169-301-290	DIODE-SW ; 1SS53/1N4148 CT ; 6PF	6	
D501~D504	12169-301-290	DIODE-SW ; 1SS53/1N4148 CT ; 6PF	4	
L1501,1601,1701,1801,1902	12429-411-109	COIL-CHOKE ; BAL03ST1ROM	5	
L1901	12429-411-101	COIL-CHOKE ; BAL02TB 101K, 100UH	1	
XF1702	14534-504-043	CERAMIC-RESONATOR ; CSA 4.00MG	1	
SF1701	14539-401-050	X-TAL ; HC18U 16.9344MHz	1	
VR1701,1704,1705	11249-102-044	VR-SEMI TAPE-H ; DVN-DJA A03B24 (20K)	3	
VR1703	11249-102-064	VR-SEMI TAPE-H ; DVN-DJA A03B24 (50K)	1	
VR1702	11249-102-104	VR-SEMI TAPE-H ; DVN-DJA A03B23 (2K)	1	
LCD	12339-104-690	LCD-CD ; LE0636AP	1	
D900	12169-403-310	DIODE-ZENER ; 5.1B	1	

■ EXPLODED VIEW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65
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FRONT PCB ASSY
17
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18
67
CD PCB ASSY
51
11
12
34
10
37
36
38
35
23
24
25
POWER TRANSE
MAIN PCB ASSY
26
27
28
44
30
29
25
42
33
TUNER PCB ASSY
31
43
32
45
46
50
22
47
48
49
35
34
1-1
22
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1-2
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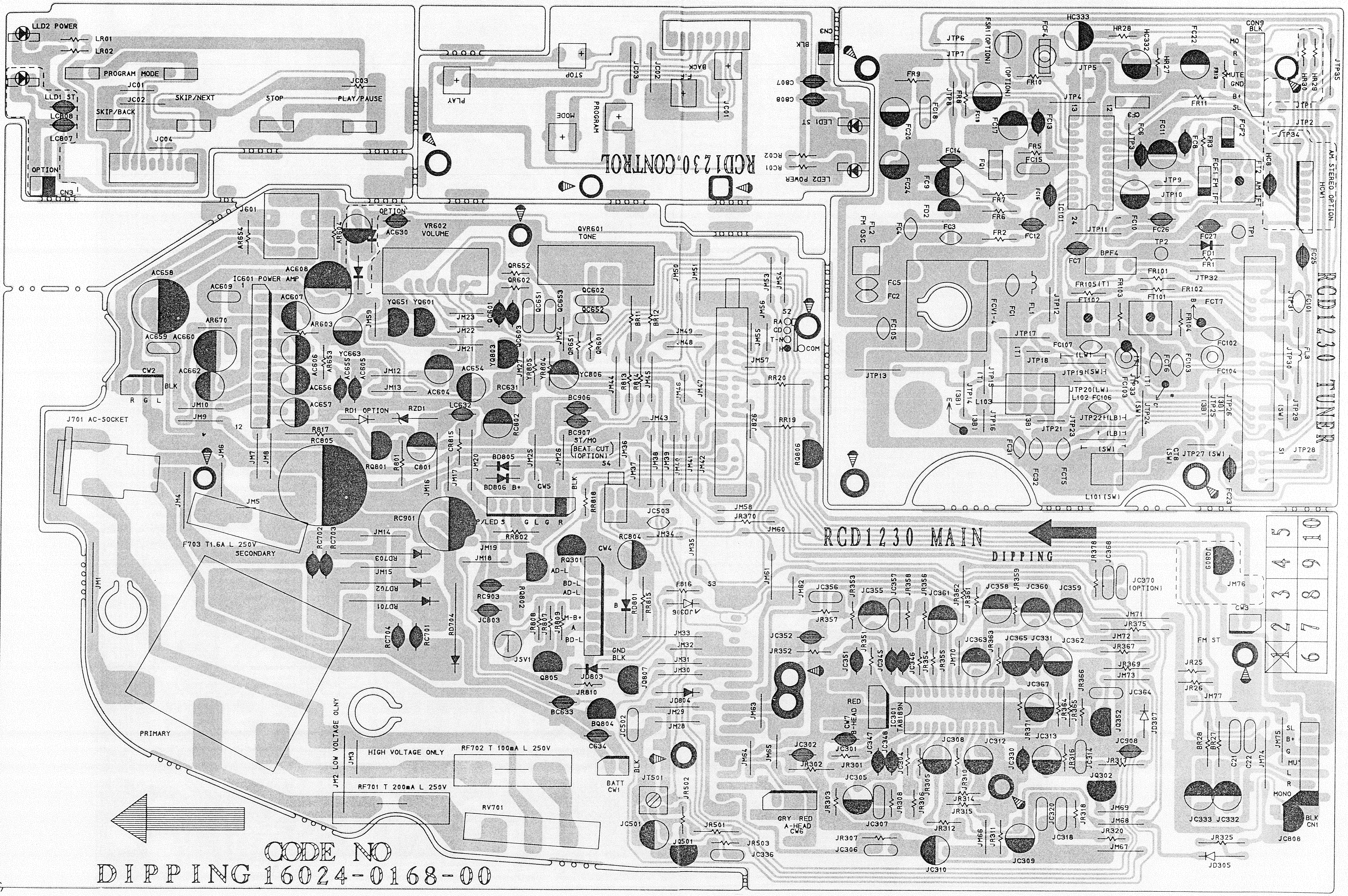
5
3

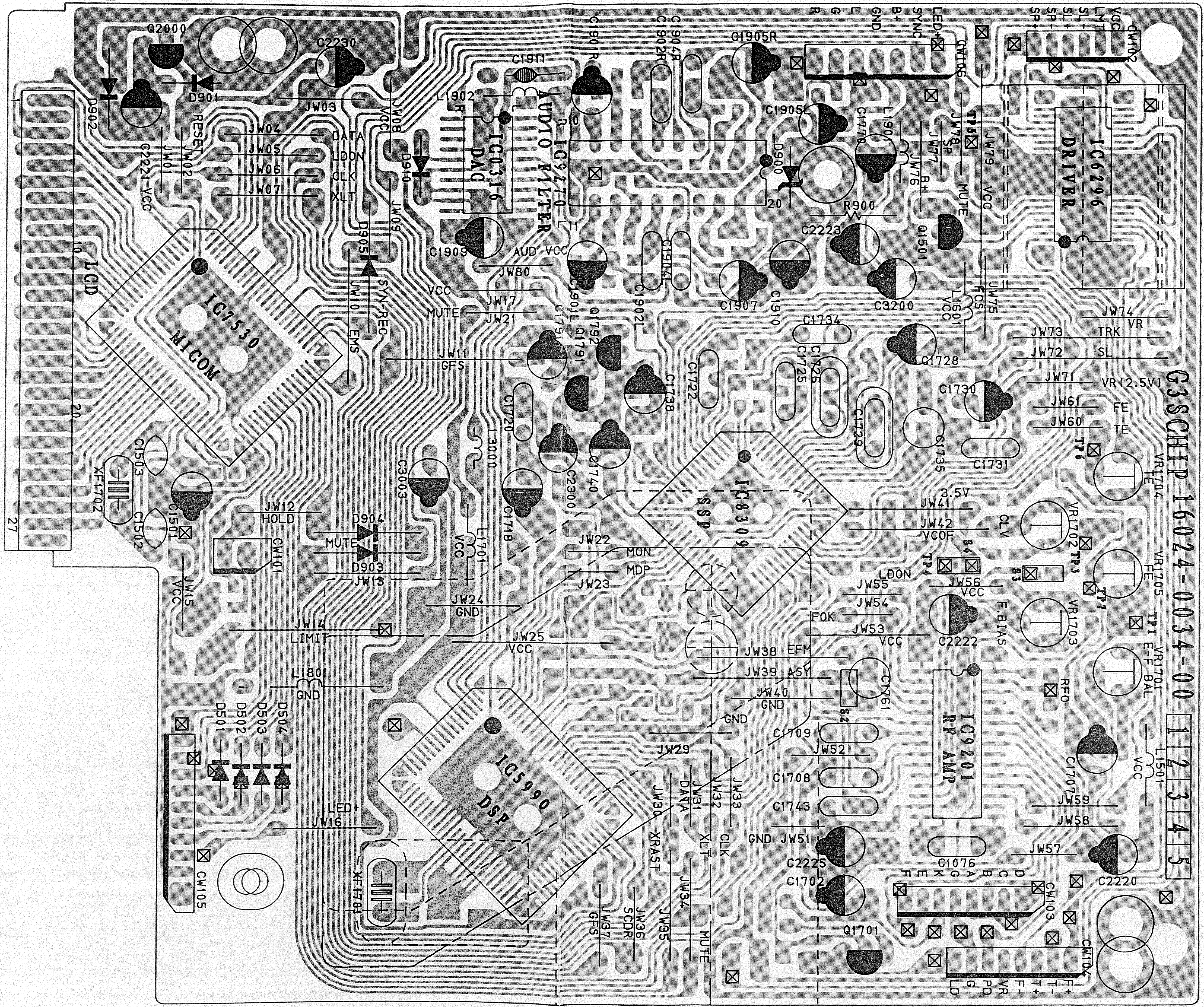
PCB PATTEREN DIAGRAM (PARTS SIDE)

1. RADIO CASSETTE SECTION


RCD1230 CONTROL
RCD1230 TUNER
RCD1230 MAIN
DIPPING
CODE NO
DIPPING 16024-0168-00
LLD2 POWER
LLD1 ST
PROGRAM MODE
SKIP/NEXT
SKIP/BACK
STOP
PLAY/PAUSE
OPTION
PLAY
MODE
PROGRAM
BACK
LED1 ST
LED2 POWER
IC601 POWER AMP
VR602 VOLUME
QVR601 TONE
J701 AC-SOCKET
F703 T1.6A L 250V SECONDARY
PRIMARY
JM2 LOW VOLTAGE OLNY
HIGH VOLTAGE ONLY
RF702 T 100mA L 250V
RF701 T 200mA L 250V
RV701
BATT CW1
ST/MO
(BEAT CUT) (OPTION)
GRY RED A-HEAD CW6
RED CW7 B-HEAD
IC301 TA8189N
FM ST
AM STEREO OPTION HCW1
MONO
BLK CN1
JC808

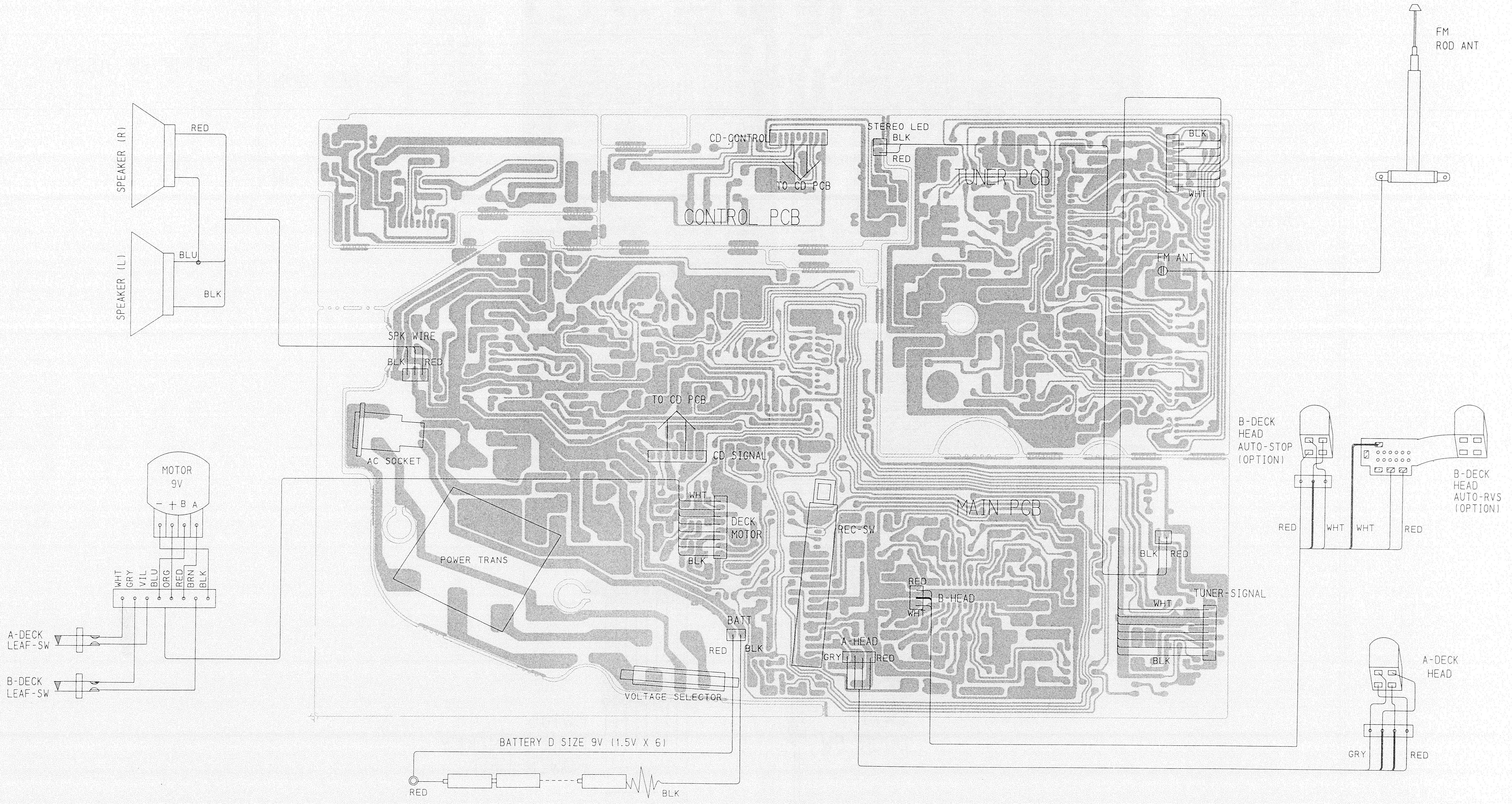
A	B	C	D	E	F	G	H	I	J	K	L	M

2. CD SECTION (PATTERN SIDE)


1
2
3
4
5
6
7
8
9
Q2000
C2230
D902
D901
JW03
JW04
JW05
JW06
JW07
RESET
JW02
JW01
C222 VCC
DATA
LDON
CLK
XLT
JW08
VCC
D910
JW09
D905
UW10
EMS
SYN-REC
IC7530
MICOM
LCD
10
20
27
C1911
L1902
IC0316
DAC
IC9270
AUDIO FILTER
C1909
AUD VCC
JW80
VCC
MUTE
JW17
JW21
JW11
GFS
C1901R
C1902R
C1904R
C1905R
C1905L
C1901L
C1902L
C1904L
C1907
C1910
C2223
R900
C3200
Q1501
D900
L1901
C1770
JW78
JW77
JW76
JW79
JW75
TP5
SP
B+
MUTE
VCC
FCS
L1601
VCC
R
G
L
GND
B+
SYNC
LED+
CW106
IC6296
DRIVER
CW102
VCC
LMT
SL-
SL+
SP-
SP+
JW74
VR
JW73
TRK
JW72
SL
JW71
VR(2.5V)
JW61
FE
JW60
TE
C1734
C1726
C1725
C1728
C1730
C1729
C1735
C1731
C1722
C1738
C1720
Q1791
Q1792
C1791
L3000
C3003
C2300
C1740
C1718
L1701
VCC
IC8309
SSP
JW41
3.5V
JW42
VCOF
CLV
JW22
MON
MDP
JW23
JW24
GND
JW25
VCC
LDON
JW55
JW56
VCC
JW54
FOK
JW53
VCC
C2222
F.BIAS
JW38
EFM
JW39
ASY
JW40
GND
C1761
GND
IC9201
RF AMP
RFO
VR1704
TE
VR1702
VR1705
FE
VR1703
VR1701
E-F BAL
TP1
TP2
TP3
TP4
TP6
TP7
S1
S2
S3
S4
G3SCHIP 16024-0034-00
1
2
3
4
5
C1503
XF1702
C1501
C1502
JW12
HOLD
CW101
D904
MUTE
D903
JW13
JW15
VCC
JW14
LIMIT
L1801
GND
D501
D502
D503
D504
LED+
JW16
CW105
IC5990
DSP
XF1701
JW29
JW30
JW31
DATA
JW32
JW33
XRAST
XLT
CLK
JW34
JW35
JW36
SCDR
JW37
GFS
MUTE
C1709
JW52
C1708
C1743
GND
JW51
C2225
C1702
Q1701
C1707
L1501
VCC
JW59
JW58
JW57
C2220
C1076
F
E
K
G
A
B
C
D
CW103
CW104
LD
G
PD
VR
F-
T-
T+
F+

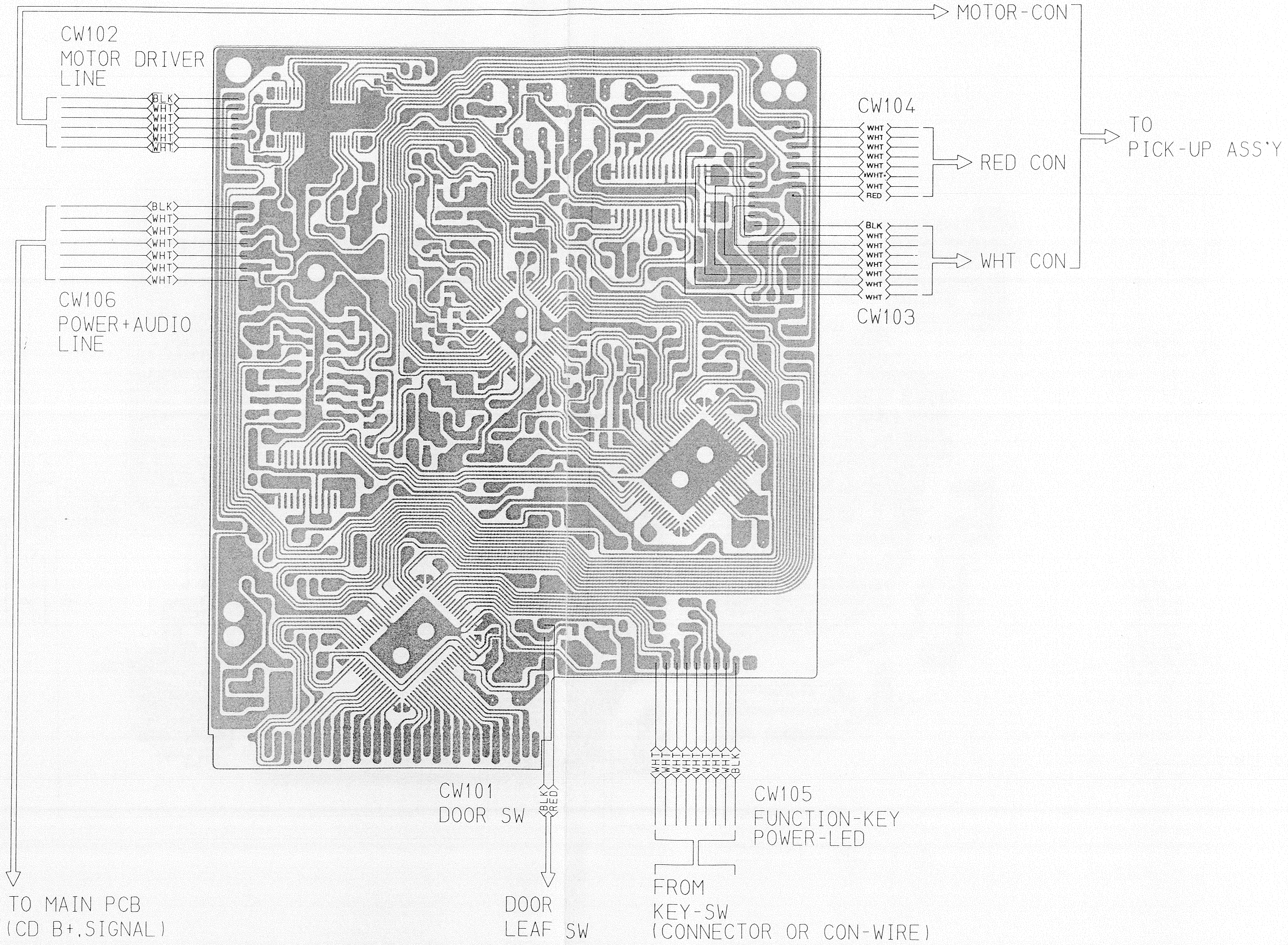
WIRING DIAGRAM (PARTS SIDE)

1. RADIO CASSETTE SECTION


SPEAKER (R)
RED
SPEAKER (L)
BLU
BLK
CD-CONTROL
TO CD PCB
CONTROL PCB
STEREO LED
BLK
RED
TUNER PCB
BLK
WHT
FM
ROD ANT
FM ANT
SPK WIRE
BLK
RED
TO CD PCB
CD SIGNAL
AC SOCKET
MOTOR
9V
− + B A
WHT
GRY
VIL
BLU
ORG
RED
BRN
BLK
A-DECK
LEAF-SW
B-DECK
LEAF-SW
POWER TRANS
WHT
DECK
MOTOR
BLK
REC-SW
MAIN PCB
B-DECK
HEAD
AUTO-STOP
(OPTION)
B-DECK
HEAD
AUTO-RVS
(OPTION)
RED
WHT
WHT
RED
BLK
RED
TUNER-SIGNAL
WHT
BLK
RED
B-HEAD
WHT
BATT
RED
BLK
A-HEAD
GRY
RED
A-DECK
HEAD
GRY
RED
VOLTAGE SELECTOR
BATTERY D SIZE 9V (1.5V X 6)
RED
BLK

2. CDP SECTION

CD MAIN

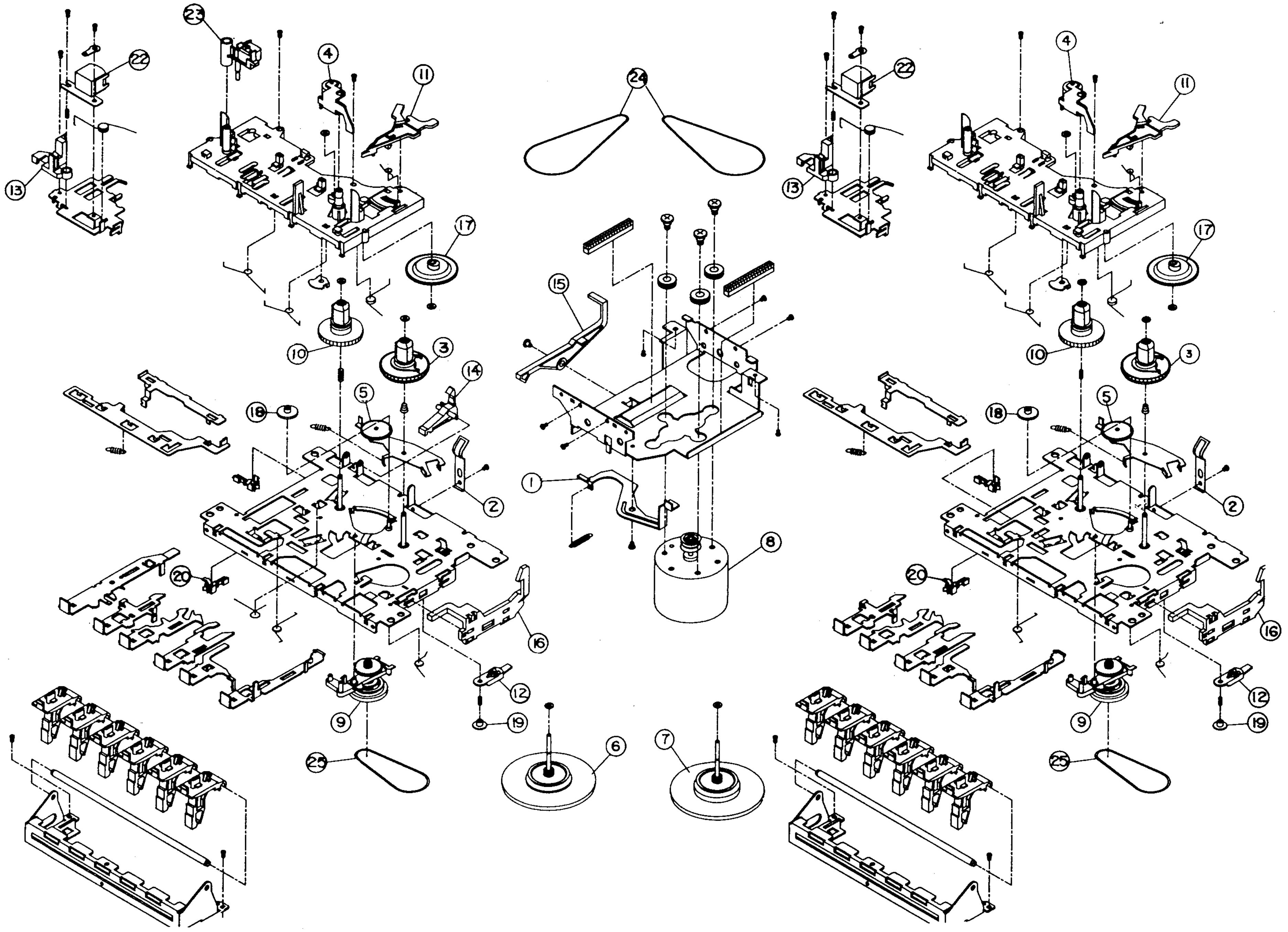

MOTOR-CON
CW102
MOTOR DRIVER
LINE
BLK
WHT
WHT
WHT
WHT
WHT
CW104
WHT
WHT
WHT
WHT
WHT
WHT
WHT
RED
RED CON
TO
PICK-UP ASS'Y
BLK
WHT
WHT
WHT
WHT
WHT
WHT
WHT
WHT
WHT CON
CW103
BLK
WHT
WHT
WHT
WHT
WHT
WHT
CW106
POWER+AUDIO
LINE
CW101
DOOR SW
BLK
RED
WHT
WHT
WHT
WHT
WHT
WHT
WHT
WHT
BLK
CW105
FUNCTION-KEY
POWER-LED
TO MAIN PCB
(CD B+,SIGNAL)
DOOR
LEAF SW
FROM
KEY-SW
(CONNECTOR OR CON-WIRE)

■ MECHANICAL PARTS LIST

NO	CODE-NO.	DESCRIPTION & SPECIFICATION	REMARK	Q'TY
1	12000-0121-00	CABINET-FRONT ; MIPS DEEP BLUE		1
2	14042-0059-00	DOOR-CASSETTE L ; ABS DEEP BLUE		1
3	14042-0060-00	DOOR-CASSETTE R ; ABS DEEP BLUE		1
4	14074-0140-00	WINDOW-CASSETTE L ; PC T0.5		1
5	14074-0141-00	WINDOW-CASSETTE R ; PC T0.5		1
6	14074-0142-00	WINDOW LCD ; ACRYL		1
9	12000-0020-03	CABINET-BACK ; MIPS DEEP BLUE		1
10	14103-0004-03	LID-BATTERY ; MIPS DEEP BLUE		1
11	14033-0012-00	HANDLE ; ABS DEEP BLUE		1
12	14084-0326-00	KNOB-VOLUME ; ABS BLK		2
13	14042-0063-00	DOOR-CD ; ABS DEEP BLUE		1
14	14074-0143-00	WINDOW-CD ; ACRYL		1
15	16603-511-840	CHUCK-PLATE ; ABS + GF BLK		1
16	12201-0011-00	CHASSIS-CD ; ABS BLK		1
17	14082-0323-00	KNOB-CD FUNCTION ; ABS BLK		1
18	13323-0012-00	HOLDER-LCD ; ABS BLK		1
19	16033-507-010	COVER-PICK UP ; ABS BLK		1
20	11533-0003-00	LEVER-EJECT ; POM BLK		1
21	16674-586-010	SPRING-CD DOOR ; SWP Ø1.0		1
22	15214-506-011	DAMPER ASS'Y ; POM PD-790		3
23	17624-634-610	KNOB-DSL ; ABS BLK		1
24	15254-515-610	LINK-DSL ; ABS BLK		1
25	17624-619-010	KNOB-LEVER ; ABS BLK		2
26	13313-0039-00	COVER-P/T ; ABS BLK		1
27	11534-0028-00	LEVER-REC ; POM NAT		1
28	13354-0026-00	GUIDE-REC ; POM BLK		1
29	12203-0012-00	CHASSIS-TUNING ; ABS BLK		1
30	14164-0004-00	INDICATOR ;P.P WHT		1
31	14084-0045-00	KNOB-TUNING ; ABS BLK		1
32	17159-0061-00	DECK-CASSETTE ; ADR2013FW	OPTIONAL	1
33	15214-510-410	WHEEL-DRUM ; ABS BLK		1
34	14509-316-050	ANT-ROD ; 5.2PI 728MM		1
35	16674-531-820	SPRING-BATTERY (+, -) L SWP PI1.0		1
36	16674-531-610	SPRING-BATTERY, B ; SWP PI1.0		1
37	16674-531-710	SPRING-BATTERY, C ; SWP PI1.2		1
38	14074-0036-00	WINDOW-SCALE ; PC T0.5		1
39	17008-130-105	SCREW PH ; +3 x 10		1
40	17448-130-201	SCREW TAP ; B-3x20 FE FZY		7
41	17458-230-103	SCREW TAP ; 3 x 10 FZB		2
42	16624-513-310	BRKT-ANT ; SPTE T0.3		1
43	19100-004-111	TUNER PCB ASS'Y		
44	19000-029-770	MAIN PCB ASS'Y		
45	14209-118-240	GENERAL-SPEAKER ; 5.0W 40HM		2
46	12724-0064-00	SPRING-DOOR ; PWR Ø 0.8		2
47	17624-628-010	KNOB-CD EJECT ; ABS BLK		1
48	16674-573-410	SPRING-PUSH ; SUS Ø0.35		1
49	16604-539-310	HOLDER-EJECT ; ABS BLK		1
50	16634-515-110	CLAMPER-WIRE ; DALB-2		1
51	19000-025-530	CD-PCB ASS'Y		1
52	12339-104-690	LCD-CD ; LE0636AP		1
53	14929-407-010	DECK-CD ; CMS-VI0/A		1
54		FRONT PCB ASS'Y		1
55	13564-601-060	SWITCH-LEAF ; MSW-0080		1
63	16174-503-410	RUBBER-CD ; SILICON WHT		4
65	13324-0048-00	HOLDER;LED ; ABS BLK		1
66	17048-126-051	SCREW-RH ; 2.6x5		1
67	11124-0008-00	HEAT SINK ; Bs S T0.5		1
68	17458-230-101	SCREW-TAP TITE BH ; 2S-3x10 FZ FZY	OPTIONAL	8

■ CASSETTE DECK EXPLODED VIEW

(ADR2013FW) AUTO STOP

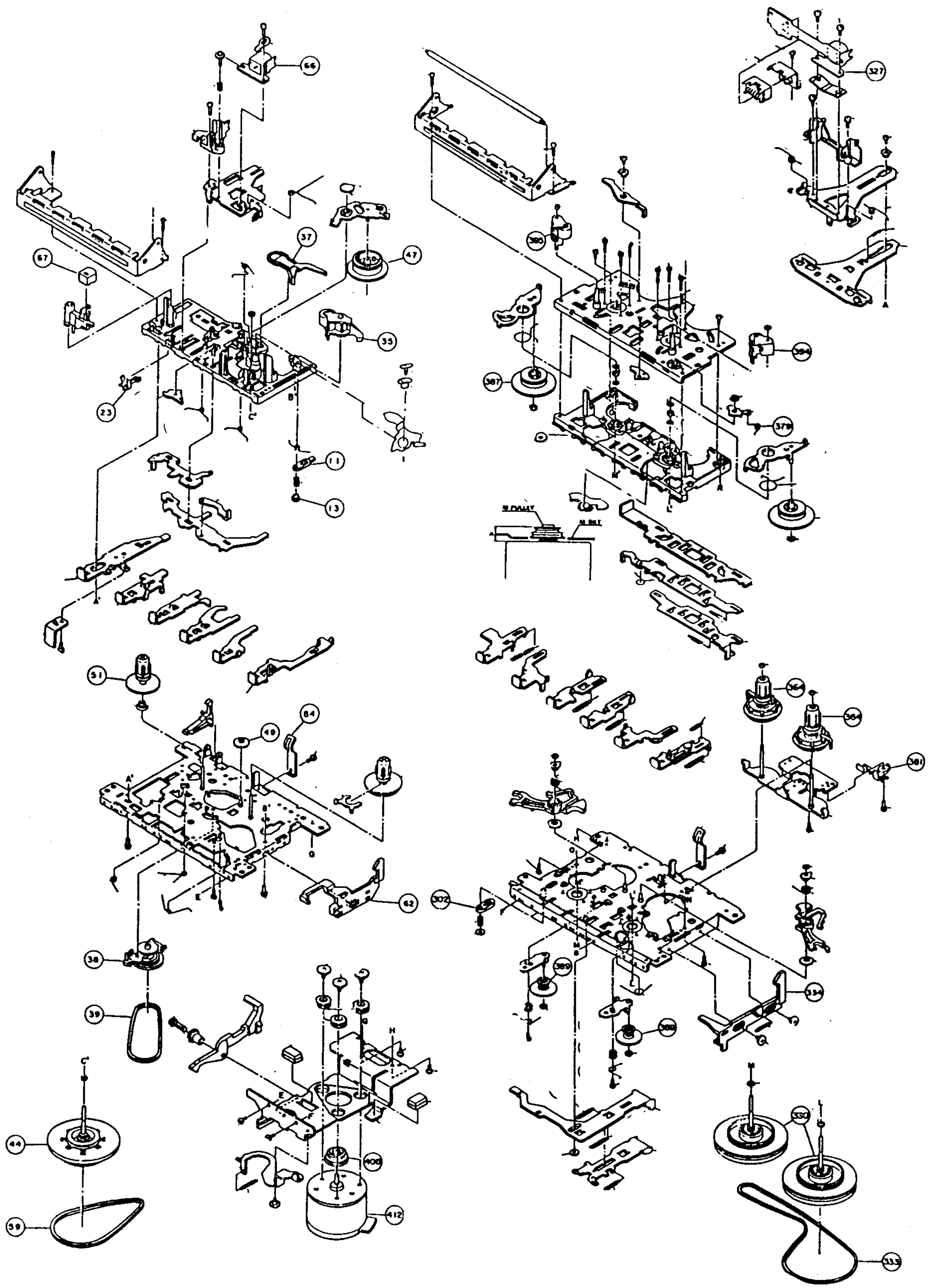


● PARTS LIST

Ref. NO.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
	17159-0046-00	DECK-CASSETTE ; ADR2013FW	1	A'SSY
1	10000-607-186	LEVER-SYNCHRO ; 11134-01280AA	1	
2	10000-607-146	SP PACK ; 51299-02506XC	2	
3	10000-607-101	TAKE UP REEL ASSY ; ADR28-010	2	
4	10000-607-103	PINCH ARM ASSY ; ADR26-001	2	
5	10000-607-104	IDLER ARM ASSY ; ADR02-042	2	
6	10000-607-105	FLYWHEEL GEAR S ASSY ; ADR15-021	1	
7	10000-607-106	FLYWHEEL GEAR D ASSY ; ADR15-022	1	
8	10000-502-011	MOTOR ; EG530YD9B	1	
9	10000-607-108	F,R ARM ASSY ; ADR22-012	2	
10	10000-607-109	SUPPLY REEL GEAR ASSY	2	
11	10000-607-117	ARM-SENSOR 11102-00530AA	2	
12	10000-607-111	PAUSE LOCK CAM	2	

Ref. NO.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
13	10000-607-113	HEAD BASE MSS ; 11105-00031A	2	
14	10000-607-145	REC SAFETY LEVER ; 11134-01000AA	1	
15	10000-607-184	RELEASE LEVER ; 11134-01240AA	1	
16	10000-607-160	LEVEL EJECT(F) ; 11134-01220AA	2	
17	10000-607-114	CAM GEAR	2	
18	10000-607-115	F.F GEAR ; 11128-00055AA	2	
19	10000-607-116	PAUSE CAP ; 11116-00011AA	2	
20	10000-607-178	LEAF SW(MAIN) ; MSW1541XACV	2	
22	10000-523-008	R/P HEAD ; MS15R-AA2N1	2	
23	10000-607-162	ARM-MAGNETIC ; 11102-00520AA	1	
24	10000-607-159	BELT MAIN ; 59.7PI X 1.0T	2	
25	10000-607-156	BELT SUB ; 34.7 PIX 1.0T	2	
26	10000-607-128	BUTTON KNOB 11133-00010AA	12	

(TN521ZSW-407Z) AUTO REVERSE



- PARTS LIST

NO.	CODE-NO.	DESCRIPTION & SPECIFICATION	Q'TY
	17159-0061-00	TN521ZSW-407Z	
11	10000-268-011	PAUSE LEVER ; 1821-14-55	1
13	10000-268-013	PAUSE STOPPER ; 1921-14-11	
23	10000-268-023	LEAF SWITCH ; MSW-1541T	1
35	10000-268-035	PINCH ROLLER ARM ASSY ; 1921-04-301	1
37	10000-268-038	SENSING LEVER ; 1921-26-04	1
38	10000-268-039	RF CLUCH ASSY ; 1921-07-302	1
39	10000-268-040	RF BELT ; 1921-07-03	1
44	10000-268-044	FLYWHEEL ASSY ; 1921-09-303	1
47	10000-268-047	CAM GEAR ; 1921-26-02	1
49	10000-268-049	FF GEAR ; 1821-10-70	1
51	10000-268-051	SUPPLY REEL ASSY ; 1921-05-304	1
52	10000-268-052	TAKE UP REEL ASSY ; 1921-05-303	1
53	10000-268-053	SENSOR ; 1921-05-06	1
59	10000-268-159	MAIN BELT ; 1821-12-173	1
62	10000-268-062	EJECT SLIDE LEVER ; 1921-13-02	1
64	10000-268-064	PACK SPRING ; 1821-10-93	1
66	10000-523-008	R/P HEAD ; MS15RAA2NI	1
67	10000-542-002	E-HEAD ; PHK380-MS16A	1
302	10000-186-011	PAUSE LEVER ; 1821-01-15	1
327	10000-524-021	PB HEAD ; MR35P-KF243	1
330	10000-601-065	FLYWHEEL ASSY ; 1851-12-501	2
333	10000-601-066	MAIN BELT ; 1821-12-142	1
334	10000-601-010	EJECT SLIDE LEVER ; 1851-17-03	1
364	10000-601-057	REEL ASSY ; 1851-11-501	2
379	10000-601-015	TURN OVER SPRING ; 1851-03-02	1
381	10000-601-058	LEAF SW ; MSW1290CV	1
384	10000-601-019	T-CAM GEAR (F) ; 1851-05-03	1
387	10000-601-022	T-CAM GEAR (R) ; 1851-06-02	1
389	10000-601-061	FF GEAR ; 1851-07-03	2
394	10000-601-054	PINCH ROLLER (F) ASSY ; 1851-09-501	1
395	10000-601-055	PINCH ROLLER (R) ASSY ; 1851-10-501	1
408	10000-268-108	MOTOR PULLEY (MA) ; 1851-14-31	1
412	10000-502-011	MOTOR ; EG530YD9B	1

Parts which are not described in the DECK list are Inot serviceable.
If you need any other parts except those described, apply DECK ASS'Y

■ ELECTRICAL PARTS LIST

1. MAIN SECTION

⚠ indicates parts for circuit safe guarding purpose. Therefore, when replacing, be sure to use specified parts only.

LOCATION	CODE NO.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
QVR601	11209-804-020	VR-DOUBLE ; RK16K12E0 Z01 53B	1	
VR602	11219-149-010	VR-DOUBLE ; RK16K12L0 Z01 53A	1	
JSV1	11249-102-104	VR-SEMI TAPE-H ; EVN-DJA A03B23(2K)	1	
JC503	11407-017-391	C-CERAMIC ; CC 45T SL 50V 390-J	1	
AC609, 659	11505-713-154	C-POLYESTER ; TAPING 0.15MF-J 50V	2	
JC502	11505-713-562	C-POLYESTER ; CQ921T M 50V 0.0056M-J	1	
C21,22,JC314,364,368,318	11505-714-103	C-POLYESTER ; CQ921T M 50V 0.01M-K	6	
JC336,370,320,306,356	11505-714-152	C-POLYESTER ; CQ921T M 50V 0.0015M-K	5	
QC602, 652	11505-714-153	C-POLYESTER ; CQ921T M 50V 0.015M-K	2	
JC306, 356	11505-714-222	C-POLYESTER ; CQ921T M 50V 0.0022M-K	2	
JC357, 307	11505-714-223	C-POLYESTER ; CQ921T M 50V 0.022M-K	2	
QC603, 653	11505-714-683	C-POLYESTER ; CQ921T M 50V 0.068M-K	2	
AC662,657,607,JC501	11608-102-104	C-ELECTROLYTIC ; SMS T 10V 100M (5x11)	4	
RC802,JC359	11608-102-224	C-ELECTROLYTIC ; SMS T 10V 220M (6.3x11)	2	
AC608, 658	11608-102-471	C-ELECTROLYTIC ; SMS T 10V 470M (8x11.5)	2	
JC305,355,362,312,367 AC606,656,C801	11608-102-473	C-ELECTROLYTIC ; SMS T 10V 47M (5x11)	8	
YC663	11608-103-223	C-ELECTROLYTIC ; SMS T 16V 22M (5x11)	1	
JC309	11608-103-333	C-ELECTROLYTIC ; SMS T 16V 33M (5x11)	1	
JC358	11608-103-473	C-ELECTROLYTIC ; SMS T 16V 47M (5x11)	1	
AC660	11608-104-221	C-ELECTROLYTIC ; SMS T 25V 220M (8x11.5)	1	
RC901	11608-104-471	C-ELECTROLYTIC ; SHL T 25V 470M (10x12.5)	1	
RC804	11608-104-473	C-ELECTROLYTIC ; SMS T 25V 47M (5x11)	1	
JC308,361,310,313,363,365	11608-106-102	C-ELECTROLYTIC ; SMS T 50V 1M (5x11)	6	
YC806	11608-106-221	C-ELECTROLYTIC ; SMS T 50V 0.22M (5x11)	1	
JC360	11608-106-222	C-ELECTROLYTIC ; SMS T 50V 2.2M (5x11)	1	
AC604,654,JC332,333	11608-106-471	C-ELECTROLYTIC ; SMS T 50V 0.47M (5x11)	4	
RC805	11609-154-332	C-ELECTROLYTIC ; SMS 25V 3300M (16x31.5)	1	
IC301	12109-401-840	IC-PRE/REC ; TA8189N	1	
IC601	12119-101-290	IC-POWER AMP ; TA8207K	1	
YQ803,Q805,RQ806,JQ807	12149-101-520	TRANSISTOR ; KSA733-Y, TAPE	4	
RQ301	12149-101-560	TRANSISTOR ; KSA708-Y, TAPE	1	
JQ501	12149-301-840	TRANSISTOR ; KSC900-L, TAPE	1	
RQ801	12149-301-930	TRANSISTOR ; KSC1008-Y, TAPE	1	⚠
RQ802	12149-401-900	TRANSISTOR ; KSD882-0	1	
YQ601,651,BQ804,JQ302,352,808	12159-301-800	TR-DIGITAL ; R1007/108M/124XS	6	
RD701,702,703,704,801	12169-201-090	DIODE-RECTIFIER ; 1N 4002, TAPE	5	⚠
JD803,804,306,307,305 BD805, 806	12169-301-290	DIODE-SW ; 1SS53/1N4148, CT ; 6PF	7	

LOCATION	CODE NO.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
REDI	12169-403-690	DIODE-ZN ; 500MW UZ-6.8 BH	1	⚠
JT501	12619-012-811	COIL-SEVEN CAN ; 1R65HH T-BIAS	1	
CW5, CN1	13078-477-120	CONNECTOR-WIRE/B.S ; 5264-07/5395-07 10	2	
J601	13339-101-502	JACK-HEADPHONE ; SHQ9085-01-142 (GRN)	1	
CW1, 3	13349-512-561	CONNECTOR-WAFER ; STICK 5267-02A 2P-TYP	2	
CW6	13349-512-562	CONNECTOR-WAFER ; STICK 5267-04A 4P-TYP	1	
CW4	13349-512-569	CONNECTOR-WAFER ; STICK 5267-08A 8P-TYP	1	
CW2, 7	13349-527-502	CONNECTOR-WAFER ; STICK 5267-03A 3P	2	
S4	13529-920-220	SWITCH-PUSH ; R2320615 2C-2P	1	
P.T(OPTIONAL)	12869-224-050	TRANS-POWER ; EI AC 230/240V 50Hz	1	⚠
P.T(OPTIONAL)	12869-224-060	TRANS-POWER ; EI AC 115/230V 60/50Hz	1	⚠
P.T(OPTIONAL)	12869-224-070	TRANS-POWER ; EI AC 120/230V 60/50Hz	1	⚠
P.T(OPTIONAL)	12869-224-080	TRANS-POWER ; EI AC 110/220V 60Hz	1	⚠
J701(OPTIONAL)	13354-501-320	SOCKET-2P SW(CP) ; HSC 1466-01-0101	1	⚠
J701(OPTIONAL)	13354-501-310	SOCKET-2P SW(EP) ; HSC 1463-01-0101	1	⚠
RV701(OPTIONAL)	13599-502-020	VOLT SELECTOR ; PCB 00120354 220/110V	1	⚠
RV701(OPTIONAL)	13599-502-060	VOLT SELECTOR ; PCB 00120353L 120/220V	1	⚠

2. CONTROL PCB ASS'Y

LOCATION	CODE NO.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
LED1, 2	12309-115-330	LED ; KLR124	2	
CN3	13078-472-115	CONNECTOR-WIRE/B.S ; 5264-02/5395-02 10	1	
	13324-0048-00	HOLDER-LED ; ABS BLK RCD1365	1	
CW10	13349-168-091	CONNECTOR-WAFER ; 2MM 52084-0910 9P	1	
PLAY,STOP,BACK, NEXT, MODE,PROG	13559-901-100	SWITCH-TACT ; SKHV10910A	6	

3. TUNER PCB ASS'Y

LOCATION	CODE-NO.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
FC15	11505-714-183	C-POLYESTER ; CQ921T M 50V 0.018M-K	1	
FC18	11505-714-823	C-POLYESTER ; CQ921T M50V 0.082M-K	1	
FC11	11608-102-104	C-ELECTROLYTIC ; SMS T 10V 100M (5x11)	1	
FC22	11608-102-224	C-ELECTROLYTIC ; SMS T 10V 220M (6.3x11)	1	
FC10	11608-102-333	C-ELECTROLYTIC ; SMS T 10V 33M (5x11)	1	
FC24	11608-102-473	C-ELECTROLYTIC ; SMS T 10V 47M (5x11)	1	
FC17	11608-106-102	C-ELECTROLYTIC ; SMS T 50V 1M (5x11)	1	
FC19	11608-106-221	C-ELECTROLYTIC ; SMS T 50V 0.22M (5x11)	1	
FC20, 9	11608-106-471	C-ELECTROLYTIC ; SMS T 50V 0.47M (5x11)	2	
FQ1	12159-301-800	TR-DIGITAL ; R1007/108M/124XS	1	
FD1	12169-301-290	DIODE-SW ; 1SS53/1N4148, CT ; 6PF	1	
FD2	12169-501-160	DIODE-AFC ; KS3302	1	
FT2	12749-202-133	TRANS-IF, AM, A ; 7M/M CAN W/STICK	1	
TP1, 2	13124-100-710	TAP-STUD ; 0.5T SPC1 BT2	1	
CON9	13349-512-568	CONNECTOR-WAFER ; STICK 5267-07A 7P-TYP	1	
FCF1	14529-301-753	FILTER-CERAMIC ; SEE 10.7MS3G-A-TF21	1	
CF3	14529-302-923	CERAMIC-FILTER ; CDA10.7MG16-A-TF01	1	
BPF4	14529-403-010	FILTER-L, C; PFW-B4 RF-PF TYPE	1	
FCF4	14539-504-050	CERAMIC-RESONATOR ; CSB 456 F18	1	
IC101	A4012-0072	IC-LINEAR ; KA2293 DIP FM/AM	1	
FC4	11407-052-409	C-CERAMIC ; CC45T CH 50V 4-C	1	
FC3	11407-057-150	C-CERAMIC ; CC45T CH 50V 15-J	1	
FC1, 5	11407-057-240	C-CERAMIC ; CC45T CH 50V 24-J TAPE	2	
FVC1-4	11819-309-510	VARICON-POLY ; P2S-22BGLT A/C-54	1	
L103	12513-249-627	COIL-AM ANT ASS'Y ; PI 8X60 570UH	1	
FL1	12609-132-430	COIL-H, SPRING ; 4T R8P4D CCW CLS N-ADJ	1	
FT102	12619-058-603	COIL-AM OSC 290UH	1	
S1	13549-801-210	SWITCH-LEVER ; 00221013S 2C-2P	1	
FCF2	14529-315-010	CERAMIC-FILTER ; SFU 455B	1	
FC31	11407-052-209	C-CERAMIC ; CC45T CH 50V 2-C	1	
FC4	11407-052-409	C-CERAMIC ; CC45T CH 50V 4-C	1	
FC107	11407-057-101	C-CERAMIC ; CC45T CH 50V 100-J	1	
FC102	11407-057-120	C-CERAMIC ; CC45T CH 50V 12-J	1	
FC3, 103	11407-057-150	C-CERAMIC ; CC45T CH 50V 15-J	2	
FC1, 5	11407-057-240	C-CERAMIC ; CC45T CH 50V 24-J TAPE	2	
FC106	11407-057-560	C-CERAMIC ; CH56-J	1	
FC32	11407-057-809	C-CERAMIC ; CC45T CH50 8-J	1	
FC23	11448-010-223	CONDENSER AIXAL-LEAD ; 25V TP 050F22000	1	
FC104	11509-452-070	C-POLYSTYRENE ; CQ 09 S 50V 180-J	1	
FC103	11509-452-100	C-POLYSTYRENE ; CQ09S 50V 330-J	1	

LOCATION	CODE-NO.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
FCV1-4	11819-309-380	VARICON-POLY ; P2S-22BPT A/C-H	1	
FCT5, 6	11829-512-030	C-TRIMMER ; TZ03R 20PF	2	
FL2	12450-314-341	COIL-BOBBIN ; 7MM 1R 6/8 0.32UH + -7% AX	1	
L102, 103	12514-281-577	COIL-ANT ASSY ; 285UH/3.5MH 8x10 0 LW/MW	1	
FL1	12609-132-430	COIL-H, SPRING ; 4T R8P4D CCW CLS N-ADJ	1	
FT101	12619-050-703	COIL-SEVEN CAN ; AQ 200UH FMW (TA8167)	1	
FT102	12619-177-902	COIL-SEVEN CAN ; AQ 560UH FLW BRN	1	
S1	13549-801-310	SWITCH-LEVER ; T0083002 8C-3P A-SHORTIN	1	
FCF2	14529-315-010	CERAMIC-FILTER ; SFU 455B	1	
FC4, 102	11407-052-409	C-CERAMIC ; CC45T CH 50V 4-C	2	
FC3, 103	11407-057-150	C-CERAMIC ; CC45T CH 50V 15-J	2	
FC101	11407-057-220	C-CERAMIC ; CC45T CH 50V 22-J	1	
FC1, 5	11407-057-240	C-CERAMIC ; CC45T CH50V 24-J TAPE	2	
FC23	11448-010-223	CONDENSER AIXAL LEAD ; 25V TP 050F22000	1	
FC103	11509-452-100	C-POLYSTYRENE ; CQ09S 50V 330-J	1	
FC104	11509-452-220	C-POLYSTYRENE ; CQ 09 S 50V 3300-J	1	
FCV1-4	11819-309-380	VARICON-POLY ; P2S-22BPT A/C-H	1	
FCT7	11829-512-030	C-TRIMMER ; TZ03R 20PF	1	
FL3	12429-070-350	COIL-CHOKE ; AX 1.2UH-03 (LAL03TB1R2M)	1	
FL2	12450-314-341	COIL-BOBBIN ; 7MM 1R 6/8 0.32UH+ -7% AX	1	
L101	12509-805-020	COIL-ANT, SW ; 9.5M/M	1	
L103	12516-203-376	COIL-ANT ASSY ; 280UH AR8X60 MW/SW	1	
FL1	12609-132-430	COIL-H, SPRING ; 4T R8P4D CCW CLS N-ADJ	1	
FT102	12619-050-703	COIL-SEVEN CAN ; AQ 200UH FMW (TA8167)	1	
FT102	12619-173-126	COIL 7 CAN ; 2.73NH AQ FSW GREEN	1	
S1	13549-801-200	SWITCH-LEVER ; 00830299 8C-3P ALL SHORT	1	
FCF2	14529-315-010	CERAMIC-FILTER ; SFU 455B	1	
FCV1-4	11819-309-550	VARICON-POLY ; P2S-22DPT A/C-H55	1	
FCT5, 6	11829-512-030	C-TRIMMER ; TZ03R 20PF	2	
FC104	11509-452-070	C-POLYSTYRENE ; CQ 09 S 50V 180-J	1	
FC103	11509-452-100	C-POLYSTYRENE ; CQ 09 S 50V 330-J	1	
L103, 102	12514-281-577	COIL-ANT ASSY ; 285 μH/3.5MH AR8x100MW/LW	1	
FT101	12619-050-703	COIL-SEVEN CAN ; AQ 200μH FMW	1	
FT102	12619-177-902	COIL-SEVEN CAN ; AQ 560μH FLW BRN	1	
S1	13549-801-310	SWITCH-LEVER ; T0083002 8C-3P A-SHORTING	1	
FL1	12601-060-916	COIL SPRING ; PI4.5 x 5T, PI0.6D CW 0.148μH	1	
FL2	12601-050-916	COIL SPRING ; PI4.5 x 5T, PI0.6D CW 0.12μH	1	
B.P.F	14529-713-060	FILTER-L, C PRINTED ; BPE B1 (64-108)	1	OPTIONAL

■ ABBREVIATION LIST

AC : Alternating Current
AM : Amplitude Modulation
AMP : Amplifier
ANT : Antenna
ASS'Y : Assembly

BLK : Black
BLU : Blue
BPF : Band Pass Filter

CD : Compact Disc
CF : Ceramic Filter
CH : Channel
CIRC : Cross Interleave Reed Solomon Code
cm : centimeter
COM : Common

D : Depth
D/A : Digital/Analog
dB : deciBel
DC : Direct Current
DTS : Digital Tuning System

EA : Each
EQ : Equalizer

F/F : Flip Flop
FM : Frequency Modulation

GND : Ground
GRN : Green
GRY : Gray

H : Height, High

IC : Integrated Circuit
IF : Intermediate Frequency
IFT : Intermediate Frequency Transformer
I/O : Input/Output

Kg : Kilogram

L : Left, Low
LCD : Liquid Crystal Display

mm : millimeter
mV : milli Volt
mW : milli Watt

NF : Negative Feedback
nm : nanometer

ORG : orange
OSC : Oscillator

PCB : Printed Circuit Board
PLL : Phase Locked Loop
P/T : Power Transformer

R : Right
RAM : Random Access Memory
REG : Regulator
RF : Radio Frequency
ROM : Read Only Memory
R/P : Record/Play

sec : second
SPK : Speaker
SSG : Standard Signal Generator
SW : Switch

TP : Test Point
TRANS : Transformer

V : Volt
VIO : VIOlet
VCO : Voltage Controlled Oscillator
VR : Variable Resistor
Vref : Refenrence Voltage
V/SEL : Voltage Selector
VTVM : Vacuum Tube Volt Meter

W : Watt, Weight
WHT : White

X : crystal